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MiND THE GAP

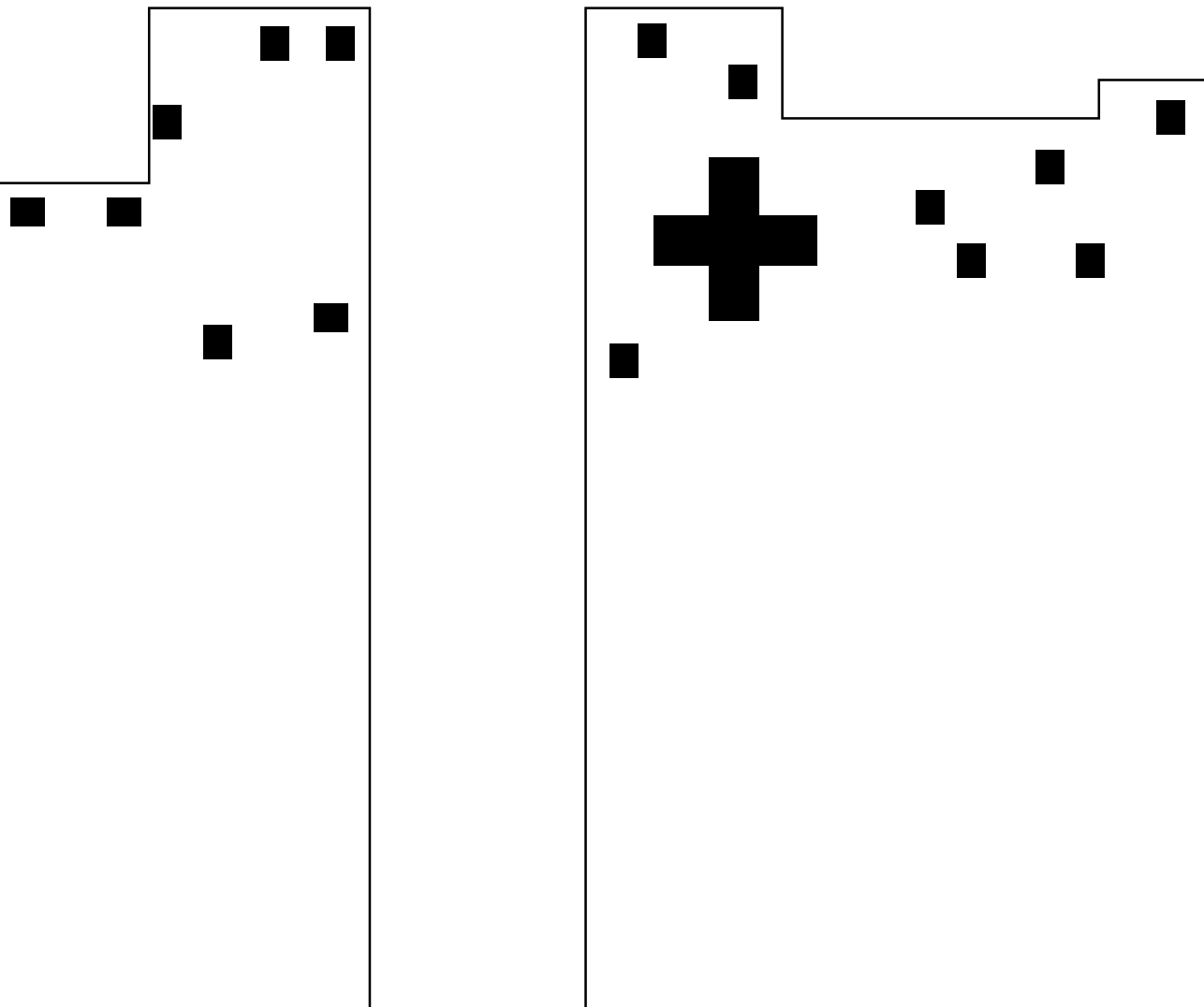
The transition to hospital consultant

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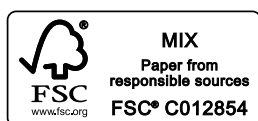
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Lucas Sint  **Andreas** Ziekenhuis VU medisch centrum



VRIJE UNIVERSITEIT

MIND THE GAP; THE TRANSITION TO HOSPITAL CONSULTANT

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof.dr. L.M. Bouter,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de Faculteit der Geneeskunde
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door

Michaël Westerman

geboren te Harlingen

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copromotoren: dr. P.W. Teunissen
 dr. C.E.H. Siegert

*Transition is a phase in which we have cast ourselves
adrift from the past but cannot yet see the land of the future*

Daniel Levinson, the seasons of a men's life, 1978

To my parents

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General introduction

Michiel Westerman

Pim Teunissen

In press in an altered outline as the chapter 'transitions in medical education' in *The Oxford Textbook of Medical Education*, Oxford University Press; 2013.

Introduction

Transitions are a double-edged sword and represent both threats and opportunities. Medical students or doctors transitioning from one phase of medical education to the next or from one post to another, have to cope with changes that range from hardly noticeable to mind-boggling. For instance, transitions may involve getting to know new colleagues, finding your way around in a new physical setting, figuring out differences in etiquette, traditions, and routines, learning new skills and knowledge to suit the needs of a different population of patients, and managing the impressions others form of you. According to Wilkie and Raffaelli ¹, each transition involves a “fundamental re-examination of who and what we are, even if this processing is occurring at a largely unconscious level”. In this process of adjustment lies an opportunity to learn, but it may also lead to stress and even high levels of burn-out.^{2,3}

The purpose of this introductory chapter is to provide a background to the central research questions of this thesis. Therefore, this chapter starts with defining the concept of transitions as used within this thesis. Secondly, the structure of both medical school and specialty training is presented as well as the varying international vocabulary. Next, the historic come about of transitions within the medical education continuum is reviewed. After which, the current state of scientific knowledge concerning transitions within the medical trajectory is described. Subsequently, four different perspectives on transitions are discussed. The first of these perspectives illustrates the way in which medical education researchers approach transitions. The following three perspectives contrast this approach by illustrating how transitions are viewed within the fields of sociology, organisational studies, and pedagogy. This juxtaposition of approaches to the study of transitions within medical education, and the accompanying range of theories and insights derived from these adjacent research fields will return in different chapters of this thesis. This detailed background on transitions leads up to the central research questions and an overview of the research projects that constitute this thesis.

Defining transitions

Throughout this thesis, transitions are defined and positioned as periods of change, rather than a single moment in which individuals experience some form of discontinuity in their (professional) life space, forcing them to respond by developing new behaviours or changing their (professional) life space in order to cope with the new situation.^{4,5} Within the medical education continuum ⁶ three major transitions can be identified; the transition from preclinical education to clinical education, the shift from being a medical student to becoming a junior doctor, and, finally, the transition from registrar to medical specialist or general practitioner. The research projects within this thesis do not cover the transition from high school to medical school or smaller transitions for instance, throughout specialty training where trainees move from one rotation to the next.⁷

Apart from the impact transitions may have on individuals within the alleged medical education continuum transitions have been a driving force behind many curriculum redesigns and even educational paradigm shifts.⁸⁻¹⁰ Moreover, the way in which medical students and doctors perceive transitions can be seen as a window into the merits and failings of the medical educational system.¹¹ As an object of study, transitions are of practical as well as scientific importance.³ Transitions will never be eliminated, so understanding the processes of smooth and disruptive transitions offers valuable lessons that are helpful in preparing future doctors for their responsibilities and guiding their continuing workplace education. From a scientific point of view, transitions are a research subject on the crossroads of many disciplines. Fields such as sociology, anthropology and organisational and social psychology have long histories of studying how people adapt to new environments and cope with transitions. Transitions in medical education offer a highly relevant context where theoretical concepts from other fields can be tested and refined.

Structure and terminology of medical and specialty training

In the Netherlands specialty training programmes last three to six years, depending on the discipline, and are preceded by six years of undergraduate medical training. Specialty training programs are offered by both university medical centres and affiliated general teaching hospitals. After completion of training, physicians usually take on a post as a hospital consultant in a university hospital or general (teaching) hospital.¹² This concept of several years of undergraduate medical training consisting of a non-clinical as well as a clinical training phase and followed by postgraduate training is common practice in most settings. However, terminology somewhat differs between the United States of America (USA), the United Kingdom (UK), and Europe. These differences are illustrated in table 1. Since the research projects within this thesis have been published in both American and European scientific journals the terminology varies throughout the chapters, although predominantly the terminology from the UK will be used.

Table 1. Terminology used within medical education in the Netherlands, the USA, and the UK.

Stage in the medical trajectory	Terminology in the Netherlands	Terminology in the USA	Terminology in the UK
Phase following undergraduate training	Postgraduate Medical Education Specialty training	Graduate Medical Education Residency training	Postgraduate Medical Education Specialty training Specialist registrar training
Trainee within specialty training	Resident Specialist trainee	Resident	Specialist registrar Registrar
Registered medical specialist	Medical specialist	Attending Attending physician	Hospital consultant

On the origin of transitions within medical education

In the beginning of the 20th century, medical education found itself on the threshold of major reform. In 1908 the Council on Medical Education (instituted in 1904 by the American Medical Association) invited the Carnegie Foundation for the Advancement of Teaching to survey the quality of medical schools and their programs in both the United States and Canada. At that time over 150, mainly commercial, medical schools existed and the quality of medical education varied enormously throughout the country. Large numbers of inadequately trained physicians settled into medical practice, leading to great variations in practice and in some instances poor health care quality.¹³ At the beginning of the twentieth century the scientific method of systemised empirical medicine was finding its way into medicine and the American Medical Association was struggling with the dilemma of how best to implement this approach into medical training. The educationalist Abraham Flexner was invited to investigate all medical schools in North America and Canada in order to evaluate the system and formulate recommendations for reform. Looking back, Flexner's report had a major impact on the design of medical curricula throughout the world and laid the foundation for many of the transitions within the medical educational continuum that medical students and doctors are dealing with today.

In his revolutionary report Flexner recommended that after a number of years of preclinical training in fields such as anatomy, physiology, and pathology a clinical phase of medical training within teaching hospitals should follow. In the preclinical years students had to be trained in formal analytic reasoning which was, and still is, typical within the natural sciences.¹⁴ Flexner argued that after the mastery of analytical reasoning, students had to enter the clinical setting: "the facts are locked up in the patient. To the patient therefore, the medical student must go".¹⁵ Within this clinical phase students could learn from real patients, and develop their clinical and diagnostic skills, under the supervision of experienced physicians. Thus, the transition from preclinical to the clinical stage of medical education became a fact. Postgraduate medical training, as we know it nowadays, did not exist at the time of Flexner. At that time only a small number of physicians specialised into a specific discipline after graduation from medical school. However, Flexner already foresaw the value of advanced training and specialisation. And the rapid development and expansion of scientific biomedical knowledge gave rise to the institutionalisation of postgraduate medical curricula. This resulted into additional transitions, one when leaving medical school and starting as a junior doctor in postgraduate training and another one after completion of specialty training and commencing work as a hospital consultant.

Current state of research on transitions within medical education

Research on transitions within medical education predominantly addresses the transition from non-clinical to clinical training within medical school, or the shift from being a medical student to becoming a junior doctor.¹⁶ Research on the third major transition, i.e. the transition from specialty training to starting as a hospital consultant is limited in comparison to the earlier mentioned transitions. In line with this Morrow *et al.*¹⁷ state that ‘medical education research has not fully addressed this transition or explored ways to improve it for the benefit of patients and doctors’. Therefore, the research projects that constitute this thesis all explore the nature of the transition from specialty training to working as a new hospital consultant.

The papers that do have been published on this transition mainly state that new hospital consultants report being unprepared for multiple non clinical tasks, such as management, that constitute the work of a hospital consultant.^{1,17-37} Only few papers describe that new hospital consultants experience the transition as an intense and stressful stage for which alleviation of this transition is required.¹⁷⁻¹⁹ An overview of all papers, their study design, and main results is presented in table 2 and is elaborated upon further on in this thesis.

With respect to the scientific quality of these papers several annotations can be formulated. First of all, the transferability of the findings derived from these studies is hampered since most studies were performed within highly specialised medical disciplines and local settings.³⁸ In addressing this paucity of transdisciplinary research, Higgins *et al.*³⁴ state that ‘there is an urgent need to conduct empirical research on the needs of new consultants with a wider scope than local or specialty specific surveys’. The second observation that can be made in respect to the above mentioned studies is that the amount of clarification research is limited since most performed studies were descriptive in nature.^{39,40} Descriptive studies are valuable in establishing empirically grounded knowledge; however Cook *et al.*³⁹ state that clarification research will result in far more understanding of the topic of interest than descriptive studies alone. Finally, all these studies solely wield a medical education perspective on transitions. As a result, valuable insights and theoretical concepts derived from adjacent research fields such as psychology and sociology are not incorporated into transition research while they could be valuable contributors for clarifying the salient issues within this transition. Several alternative perspectives on transitions besides the medical educational one will be presented in the following paragraph.

Table 2. Overview of published papers concerning the transition from specialty training to hospital consultant until 2010.

Author(s)	Year	Sort of paper	Medical discipline	Main findings	Recommendations
1 Sandler	1992	Research report of survey study	Geriatric medicine	Unprepared in managerial and organisational skills	Preparation through training within specialty training program
2 Lenton et al.	1994	Research report of survey study	Paediatrics	Non clinical skills training lacking in training	Preparation through training within specialty training program
3 Loane et al.	1996	Research report of survey study	Psychiatry	Clinically well prepared, management training insufficient	Preparation through training within specialty training program
4 Haddad et al.	1996	Research report of survey study	Psychiatry	Management training insufficient	Preparation through training within specialty training program
5 Roberts et al.	2002	Report of intervention experiences	Psychiatry	Mentoring is beneficial for new consultants	Mentoring should be formalised
6 MacDonald et al.	2004	Report of intervention experiences	Psychiatry	Training in non clinical skills is needed and possible	Preparation through training within specialty training program
7 Crowe	2004	View point paper	Various	Tips and tricks for job negotiations and tackling management issues	
8 Higgins et al.	2005	View point paper	Various	Training in non clinical skills is needed	Preparation through training within specialty training program
9 Naeem et al.	2005	View point paper	Psychiatry	Competency based training is needed	Offering a mentor is helpful
10 Ivbijaro et al.	2005	Report of intervention experiences	General practice	Higher professional education training is effective for new general practitioners in respect to personal development and management	Continuation of training for new general practitioners in respect to personal development and management
11 Leslie et al.	2005	Research report of qualitative study	Paediatrics	Informal mentoring for new consultants is valuable but sparse	Mentoring should be increased through formalisation
12 McKinstry et al.	2005	Research report of survey study	Orthopaedics	Management training is lacked by new consultants	Preparation through training within specialty training program and mentoring for new consultants
13 Wilkie et al.	2005	Report of intervention experiences	Psychiatry	Transition is an intense stage in which individual has to develop and progress swiftly	Support through structured groups is effective
14 Card et al.	2006	Research report of survey study	Internal medicine	Clinically well prepared but preparation for management and health prevention is lacking	Preparation through training within specialty training program

15	Benstead	2006	Research report of qualitative study	Oncology	To be clinically competent is not enough, handling emotions, stress and relations within the context is essential as well as management skills	Preparation through training within specialty training program and mentoring for new consultants
16	Beckett et al.	2006	Research report of survey study	Emergency medicine	New consultants inadequately prepared for management issues and causes stress	Preparation through training within specialty training program
17	Kite et al.	2006	View point paper	Palliative medicine	Preparation for management and handling relationships is lacking among new consultants	Training in managing interpersonal relationships on the work floor is needed
18	Lieberman et al.	2006	Research report of survey study	Paediatrics	Overall well prepared but better preparation needed within palliative care and management	Preparation through training within specialty training program
19	Mc Donnell et al.	2007	Research report of survey study	Ophthalmology	New consultants comfortable with received clinical training but not with non clinical preparation	Preparation through specialty training program alterations and support from organisations and peers
20	Robinson et al.	2007	View point paper	Various	Tips for new consultants	Preparation through training within specialty training program
21	Brown et al.	2009	Research report of mixed method study consisting of interviews, surveys, and focus groups	Various	Transition is challenging. New consultants are clinically well prepared, but unprepared in respect to managerial and financial aspects	Preparation through training within specialty training program
22	Morrow et al.	2009	Research report of qualitative study	Various	New consultants are clinically well prepared, but unprepared in respect staff management and leadership	Preparation through training within specialty training program

Different perspectives on transitions

Within this section four different perspectives on transitions are presented stemming from four research fields: medicine and medical education, social psychology, organisational studies, and pedagogy. By presenting the way in which transitions are conceptualised and studied within these different perspectives a frame of reference is created for discussing how transitions within the medical educational continuum can be viewed and approached. The four different perspectives are derived from various literature fields, all with different research traditions and approaches to transitions. In order to facilitate the comparison and categorisation of insights from these different perspectives, Foucault's concept of problematisation will be used.⁴¹ Foucault described problematisation as thinking differently and viewing a given fact or situation as a problem. By critically reflecting on a situation and presenting it to oneself as a problem, new ways of conceptualising that situation will emerge and therefore new answers to the problem might arise.⁴² By characterising the problematisation features in each of the four domains, the way is paved for formulating a different approach to transitions in the medical domain. Each of the following paragraphs will describe how transitions within each of the four fields are conceptualised, after which the way in which transitions are 'problematised' will be characterised.

The first of four perspectives presents how transitions within the medical education literature are being researched. Secondly, two perspectives on transitions are described stemming from social psychological and sociological research. The first originates from an individual psychological approach to transitions, looking at how people perceive and cope with changes in their life span. The latter of the two perspectives conceptualises transitions from a contextual and organisational point of view and looks at how newcomers transition into a new work setting. As a fourth perspective different concepts derived from socio-cultural pedagogy are presented and examine their take on how people learn from and develop within new situations.

Transitions as interruptions of the medical education continuum

Throughout the years a steady but relatively small number of papers have been published addressing the different transitions within the medical education continuum. In the majority of these papers transitions are described from an individual perspective, the person who is transitioning. The general conclusion is that transitions are stressful and problematic stages within the medical trajectory.¹⁶ Transitions are often viewed as undesired interruptions of a continuum, and proposed interventions aim at curriculum alterations in order to better align training with the next stage in the professional's medical trajectory. Furthermore, it appears that the rationale for investigating transitions is to evaluate the preceding training in terms of efficiency and degree of preparation. For instance, several studies have investigated if students trained in a student centred curriculum have better communication or clinical skills than students from a traditional

curriculum.^{43,44} Few studies address possibilities of aiding the individual within the transition. Although recently, some authors have argued that transitions should be viewed as learning opportunities in stead of a threat for the person in transition.^{3,45}

This predominant view on transitions as threats, or problematic situations, often results in interventions aimed at eliminating the transition through instituting transitional courses.⁴⁶⁻⁴⁹ More specifically, the problems that arise within the transition are mainly seen as a result of a deficient preparation of the transitioning individual. Therefore, within the domain of medical education, it is repeatedly postulated that the answer lies in curriculum alterations in order to achieve a better preparation of the individual for the next phase of their career.

Transitions as key characteristics of human development

Within social psychology and sociological research, different approaches to human development are maintained. The second perspective stems from these research fields and is often described as transition psychology or life course sociology, in which human development is inextricably bound to different transitions.⁵⁰ Transitions are defined as periods in which an individual experiences a discontinuity in their life that requires new behavioural responses in order to effectively cope with that new situation.⁵¹⁻⁵³ Therefore, transitions can be ignited by different life-events such as school entrance, marriage, divorce, parenthood, retirement, or entering a new work position. Several conceptual frameworks or transition models exist that provide insight into the different phases present within transitions and the psychological processes therein. Adams *et al.*⁵¹ describe a seven-phase transition model with concomitant effects on self-esteem of the person in transition. Another, more practical model, is that of Nicholson who describes transitions as a cyclical process in which four phases can be identified i.e. preparation, encounter, adjustment, and stabilisation.⁵ For example, a specialty trainee is prepared by his postgraduate training (phase 1) for working as a hospital consultant, and upon entrance he encounters (phase 2) a multitude of novel tasks, and expectations. In order to overcome and master these novel tasks, the new consultant needs to adjust and change (phase 3) after which a new stable phase will begin (phase 4).

Since transition psychology and life course sociology approach transitions as psychological developmental processes, numerous studies have been conducted into individual psychological characteristics that can facilitate or impede these developments. For instance, several studies have shown that personality traits like extraversion^{54,55} or optimism⁵⁶ are associated with a smoother transition and lower stress levels. Furthermore, Vardi *et al.*⁵⁷ show that self-esteem and an internal locus of control, i.e. the personal beliefs as to what extent one can control or influence events that affect them, are associated with a smoother transition.

When we apply Foucault's concept of problematisation, we can postulate that transition psychology and life course sociology conceptualise transitions as initiators of human development, which provide the individual with the possibilities of adaptation and personal growth. This perspective on human development, in which transitions take centre stage, contrasts with the medical education domain in which transitions are often viewed as threats that should be prevented, as described in the paragraphs above. Therefore, the psychological perspective on transitions could provide us with insight and tools to better support and direct the individual throughout the transition. The commonality between medical education research and this individual developmental approach to transitions lies in their neglect of the relationship between individuals in transition and the context in which the transition is situated. When personality traits are viewed as strong predictors for the progression through transitions, this could result in a more or less static approach to transitions when these traits are seen as stable through time. This contradicts with a more socio-cultural perspective on transitions in which the individual and the new context are interrelated and continuously changing, as described further down.

Transitions within an organisational context

The third perspective on transitions comes from organisational psychology, more specifically organisational socialisation research. This area of research originates from the work of Van Maanen and Schein⁵⁸ and has gradually developed into an established area of interest within human resource management. Organisational socialisation is concerned with both the content and process of learning through which newcomers develop into a new role or position within an organisation.^{59,60}

Multiple studies have been performed to gain a better insight into how newcomers tend to socialise and integrate within a new setting, in order to inform measures aimed at increasing employee engagement, productivity, and satisfaction with the organisation.^{61,62} Morrison *et al.*^{63,64} recognised that newcomers within an organisation are actively in search for information in order to develop themselves within four specific domains; task mastery, role clarification, acculturation, and social integration. These domains show great similarity to the largest hurdles present within transitions in medical education. Especially, the domains of role clarification and acculturation are identified as prominent in different medical transition studies.^{18,65,66} The similarity between these concepts of how newcomers develop into a new setting and characteristics within transitions in medical education, underpins the usefulness of these insights in interventions aimed at facilitation of medical students or doctors in transition.

Another key characteristic of how transitions are depicted within organisational socialisation research is that transitions are considered social processes in which the interaction and forming of relationships with new colleagues are essential for reducing role uncertainty of the newcomer and

therefore facilitate integration and socialisation.⁶⁷⁻⁷⁰ This focus on socialisation and transitions as social processes was already acknowledged by Becker in his famous work 'Boys in White: Student Culture in Medical School' in the 1960's in which he describes how medical students struggle to adapt to and integrate with clinical supervisors, nurses and fellow students upon entering the clinical setting.⁷¹

In applying the problematisation approach to the organisational socialisation perspective on transitions, the following conclusions can be drawn. Transitions are social processes in which the newcomer is in search of information regarding their new tasks, role, and the existing culture. The rationale for most organisational socialisation research is to enhance and improve both productivity and engagement of newcomers within the organisation. Although this approach results in valuable insights and strategies for supporting individuals in transition, the focus on role clarification and social interaction does not address the problem of transfer, as present within the medical education domain. For example the medical student struggles to transfer previously acquired knowledge into practice for clinical reasoning purposes.

Transitions in the light of constructivist pedagogy

The fourth outlook on transitions is a pedagogical one. Of course, pedagogy, the science of teaching and learning, covers a range of perspectives. This section focuses on the link between Piagetian and Vygotskian constructivist theory. The very basic need for equilibrium is an important feature in the work of Jean Piaget. Although Piaget (1896-1980) was a biologist by study, he mainly researched cognitive development processes and the nature of intelligence. In his work he looked at how children solve problems and challenging tasks by carefully observing their approaches. Piaget described how children and adults' interactions with their environment lead to experiences that either fit their reference mental model or not. In case of an experience that fits expectations, it will be easily assimilated. However, when people, new consultants in this case, find themselves in a transition phase, they may experience new and unexpected things, leading to disequilibrium. People react differently to disequilibrium, for example with confusion or anger, but eventually will find a new equilibrium by learning, changing behaviour or changing the setting.⁷² The scope of change is probably the result of the novelty of the experience and the degree of effort an individual chooses to put into the new situation.⁷³

Another constructivist theorist is Vygotsky. Often being named as the father of socio-cultural learning theory, he conceptualised learning and teaching as a social and cultural phenomenon rather than as a process in the heads of individuals.⁷⁴ Vygotsky described the concept of the 'zone of proximal development' (ZPD), which denotes 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more

capable peers'.⁷⁵ Chaiklin has identified several aspects of the zone of proximal development concept that show how well it aligns with transitions in medical education.⁷⁶ By describing these characteristics in relation to transitions, it becomes clear how the concept of ZPD offers yet another take on transitions in medical education. Chaiklin differentiates between an objective ZPD and a subjective ZPD. In our case, the objective ZPD would refer to the (psychological) functions that need to be formed during a given period in order to enter the next period. For instance, when starting as a new consultant, one has to develop the ability to perform several non-clinical tasks, and treat patients and be prepared to carry responsibility for decisions that affect patients at the same time. Moreover, the age of new consultants may coincide with starting a family, or moving house with its accompanying stressor. These aspects of the transition are not dependent on any individual doctor and therefore constitute the objective ZPD. The subjective ZPD refers to the extent to which a person's capabilities are realising the requirements of the next phase. It helps to identify the development an individual person needs to make. Vygotsky's ZPD explains why people may respond differently to the same transitions. From a problematisation viewpoint, the ZPD focuses on the potential of individuals in a given transition with its inherent requirements, rather than on already existing capabilities. Using ZPD, one looks at what will be possible as a result of the transition, not backwards looking for explanations as to why a transition exists. It is also a concept that combines a focus on individual capabilities with the possibilities and restrictions afforded by the context in which a transition takes place.

Central research questions and overview

The offered overview of existing literature within medical education illustrates that an in depth understanding of the transition to hospital consultant is lacking. Furthermore, the presentation of different perspectives on transitions in general illustrates how a transdisciplinary approach to the subject of individuals in transition can result in such a deeper understanding of the transition to consultant. The research reports that constitute this thesis build on these two assertions and aim to further clarify the transition to hospital consultant using different theoretical perspectives, resulting in a deeper understanding of the processes that take place within this transition. The central research questions within this thesis are:

1. What factors in the transition to their new position are perceived as salient by new hospital consultants?
2. What is the influence of preparation received through specialty training on the progression and outcome of the transition to hospital consultant?
3. What influential contextual and psychological factors can be identified within the transition to hospital consultant?

Several research projects were conducted in answering the research questions. In chapter 2 an overview of the existing medical education literature on transitions is presented. The research project presented in chapter 3 concerns a qualitative interview study aiming to formulate an initial conceptual framework on the transition to hospital consultant. Together, chapters 2 and 3 predominantly address the first research question. The second research question and the third in respect to contextual variables take centre stage within chapters 4 and 5. More specifically, chapter 4 constitutes a survey study performed among all new consultants from all 27 clinical disciplines in the Netherlands. Within this research project several hypothesized associations were formulated on the insights derived from chapters 2, 3, and adjacent research fields. The hypothesised associations were tested by using a structural equation modelling approach and address the influence of preparation received through specialty training, psychological attributes and contextual variables. In chapter 5 the transition to hospital consultant is compared between the Netherlands and Denmark in order to gain insight into the influence of contextual factors on the transition such as working conditions and cultural characteristics. Subsequently, chapter 6 concerns a longitudinal qualitative study in which new consultants were followed during a six-month period by conducting several individual interviews. This study investigates how new consultants cope with their new tasks and develop the skills needed in order to function adequately as supervisors. By doing so, the third central research question is investigated. Finally, chapter 7 addresses the main findings and overall conclusions that can be drawn from the different research projects. Furthermore, the strengths and limitations of the various research projects are described as well as possible implications for clinical and educational practice and suggestions for future research. Since this thesis constitutes published journal articles, some repetition across different chapters was inevitable

References

1. Wilkie G, Raffaelli D. In the deep and: making the transition from SpR to consultant. *Advances in Psychiatric Treatment*. 2005;11:107-14.
2. Bogg J, Gibbs T, Bundred P. Training, job demands and mental health of pre-registration house officers. *Med Educ*. 2001;35:590-5.
3. Teunissen PW, Westerman M. Junior doctors caught in the clash: the transition from learning to working explored. *Med Educ*. 2011;45:968-70.
4. Nicholson N. a theory of work role transitions. *Adm sci q*. 1984;29:172-91.
5. Nicholson N. The transition cycle: causes, outcomes, processes and forms. In: Fisher S, Cooper CL, eds. *On the move: the psychology of change and transition*. New York: John Wiley & Sons inc.; 1990:83-108.
6. Molenaar WM, Zanting A, van Beukelen P et al. A framework of teaching competencies across the medical education continuum. *Med Teach*. 2009;31:390-6.
7. Bernabeo EC, Holtman MC, Ginsburg S, Rosenbaum JR, Holmboe ES. Lost in transition: the experience and impact of frequent changes in the inpatient learning environment. *Acad Med*. 2011;86:591-8.
8. Jacobs JC, Bolhuis S, Bulte JA, Laan R, Holdrinet RS. Starting learning in medical practice: an evaluation of a new Introductory Clerkship. *Med Teach*. 2005;27:408-14.
9. Van Gessel E, Nendaz MR, Vermeulen B, Junod A, Vu NV. Development of clinical reasoning from the basic sciences to the clerkships: a longitudinal assessment of medical students' needs and self-perception after a transitional learning unit. *Med Educ*. 2003;37:966-74.
10. Tweed MJ, Bagg W, Child S, Wilkinson T, Weller JM. How the trainee intern year can ease the transition from undergraduate education to postgraduate practice. *N Z Med J*. 2010;123:81-91.
11. Musick DW. A conceptual model for program evaluation in graduate medical education. *Acad Med*. 2006;81:759-65.
12. Ten Cate TO. Medical education in The Netherlands. *Med Teach*. 2007;29:752-7.
13. Beck AH. The Flexner Report and the Standardization of American Medical Education. *JAMA: The Journal of the American Medical Association*. 2004;291:2139-40.
14. Cooke M, Irby DM, Sullivan W, Ludmerer KM. American Medical Education 100 Years after the Flexner Report. *N Engl J Med*. 2006;355:1339-44.
15. Flexner A. *Medical Education in the United States and Canada: A report to the Carnegie Foundation for the Advancement of Teaching [Carnegie Foundation Bulletin No.4]* 356. New York: NY: Carnegie Foundation for the Advancement of Teaching. 1910
16. Teunissen PW, Westerman M. Opportunity or threat; ambiguity in the consequences of transitions in medical education. *Med Educ*. 2011;45:51-9.
17. Morrow G, Illing J, Burford B, Kergon C. Are specialist registrars fully prepared for the role of consultant? *The clinical teacher*. 2009;6:87-90.
18. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)*. 2009;70:410-4.
19. Beckett M., Hulbert D., Brown R. The new consultant survey 2005. *Emerg Med J*. 2006;23:461-3.
20. Naeem A, Rutherford J, Kenn C. From specialist registrar to consultant: permission to land? *Psychiatric Bulletin*. 2005;29:348-51.
21. McKinstry B, Macnicol M, Elliot K, Macpherson S. The transition from learner to provider/teacher: the learning needs of new orthopaedic consultants. *BMC Med Educ*. 2005;5:17.
22. Kite S, Salt S. Transition from SpR to consultant: a survey of training needs in palliative medicine. *Palliat Med*. 2006;20:53.
23. Card SE, Snell L, O'Brien B. Are Canadian General Internal Medicine training program graduates well prepared for their future careers? *BMC Med Educ*. 2006;6:56.
24. Haddad P, Creed F. Skills training for senior registrars. Results of a survey of recently appointed consultants. *Psychiatric Bulletin*. 1996;20:391-4.
25. Lenton SW, Dison PJ, Haines LC. A BPA survey of recently appointed consultants. *Arch Dis Child*. 1994;71:381-5.

26. Loane R, Barker A. Newly appointed consultants in old age psychiatry and the adequacy of higher training. *Psychiatric Bulletin*. 1996;20:388-90.
27. Benstead K. What is valuable for specialist registrars to learn in order to become good consultant clinical oncologists? *Clin Oncol (R Coll Radiol)*. 2006;18:549-54.
28. Crowe A. Surviving and thriving in the early years as a new consultant physician. *Clin Med*. 2004;185-6.
29. Ivbijaro G, Abouharb T, Gikunoo M. Higher professional education: self and professional development--the London experience. *Eur J Gen Pract*. 2005;11:64-7.
30. MacDonald J, Cole J. Trainee to trained: helping senior psychiatric trainees make the transition to consultant. *Med Educ*. 2004;38:340-8.
31. Roberts G, Moore B, Coles C. mentoring for newly appointed consultant psychiatrists. *Psychiatric Bulletin*. 2002;26:106-9.
32. Robinson G, Morreau J, Leighton M, Beasley R. New hospital consultant: surviving a difficult period. *N Z Med J*. 2007;120:U2662.
33. Sandler M. Training experience and views of recently appointed consultants in geriatric medicine. *J R Coll Physicians Lond*. 1992;26:44-6.
34. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
35. Leslie K, Lingard L, Whyte S. Junior faculty experiences with informal mentoring. *Med Teach*. 2005;27:693-8.
36. McDonnell PJ, Kirwan TJ, Brinton GS et al. Perceptions of recent ophthalmology residency graduates regarding preparation for practice. *Ophthalmology*. 2007;114:387-91.
37. Lieberman L, Hilliard RI. How well do paediatric residency programmes prepare residents for clinical practice and their future careers? *Med Educ*. 2006;40:539-46.
38. Mays N, Pope C. Qualitative research in health care. Assessing quality in qualitative research. *BMJ*. 2000;320:50-2.
39. Cook DA, Bordage G, Schmidt HG. Description, justification and clarification: a framework for classifying the purposes of research in medical education. *Med Educ*. 2008;42:128-33.
40. Bligh J, Brice J. What is the value of good medical education research? *Med Educ*. 2008;42:652-3.
41. Alvesson M, Sandberg J. Generating research questions through problematization. *Academy of Management Review*. 2011;36:247-71.
42. Healy P. Foucault: Problematization, Critique and Dialogue. *Rationality, hermeneutics, and dialogue: toward a viable post foundationalist account of rationality*. Aldershot, England: Ashgate Publishing Ltd.; 2005:64-87.
43. Willis SC, Jones A, O'Neill PA. Can undergraduate education have an effect on the ways in which pre-registration house officers conceptualise communication? *Med Educ*. 2003;37:603-8.
44. O'Neill PA, Jones A, Willis SC, McArdle PJ. Does a new undergraduate curriculum based on Tomorrow's Doctors prepare house officers better for their first post? A qualitative study of the views of pre-registration house officers using critical incidents. *Med Educ*. 2003;37:1100-8.
45. Kilminster S, Zukas M, Quinton N, Roberts T. Preparedness is not enough: understanding transitions as critically intensive learning periods. *Medical Education*. 2011;45:1006-15.
46. Poncelet A, O'Brien B. Preparing medical students for clerkships: a descriptive analysis of transition courses. *Acad Med*. 2008;83:444-51.
47. O'Brien BC, Poncelet AN. Transition to clerkship courses: preparing students to enter the workplace. *Acad Med*. 2010;85:1862-9.
48. Jacobs JC, Bolhuis S, Bulte JA, Laan R, Holdrinet RS. Starting learning in medical practice: an evaluation of a new Introductory Clerkship. *Med Teach*. 2005;27:408-14.
49. Chittenden EH, Henry D, Saxena V, Loeser H, O'Sullivan PS. Transitional clerkship: an experiential course based on workplace learning theory. *Acad Med*. 2009;84:872-6.
50. George LK. sociological perspectives on life transitions. *Annu Rev Sociol*. 1993;19:353-73.
51. Adams J, Hayes J, Hopson B. *Transition, understanding & managing personal change*. London: Martin Robertson & Company; 1976.
52. Blair SEE. the centrality of occupation during life transitions. *Br j occup ther*. 2000;63:19-25.

53. Higgins ET. the four a's of life transition effects: attention, accessibility, adaptation, and adjustment. *Soc cogn.* 1995;13:215-42.
54. Kling KC, Ryff CD, Love G, Essex M. Exploring the influence of personality on depressive symptoms and self-esteem across a significant life transition. *J Pers Soc Psychol.* 2003;85:922-32.
55. Schlossberg NK. A Model for Analyzing Human Adaptation to Transition. *Couns Psychol.* 1981;9:2-18.
56. Brissette I, Scheier MF, Carver CS. The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality and Social Psychology.* 2002;82:102-11.
57. Vardi Y. Psychological empowerment as a criterion for adjustment to a new job. *Psychological Reports.* 2000;87:1083-93.
58. Maanen van J, Schein EH. Toward a theory of organizational socialization. *Res Organ Behav.* 1979;1:209-64.
59. Chao GT, O'Leary-Kelly AM, Wolf S, Klein HJ, Gardner PD. Organizational Socialization: Its content and consequences. *J Appl Psychol.* 1994;79:730-43.
60. Cooper-Thomas HD, Anderson N. Organizational socialization A new theoretical model and recommendations for future research and HRM practices in organizations. *Journal of Managerial Psychology.* 2006;21:492-516.
61. Saks AM, Gruman JA. Getting newcomers engaged: the role of socialization tactics. *Journal of Managerial Psychology.* 2011;26:383-402.
62. Haueter JA, Hoff Macan T, Winter J. Measurement of newcomer socialization: Construct validation of a multidimensional scale. *Journal of Vocational Behavior.* 2003.
63. Morrison EW. Longitudinal study of the effects of information seeking on newcomer socialization. *J Appl Psychol.* 1993;78:173-83.
64. Kammeyer-Mueller JD, Wanberg CR. Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology.* 2003;88:779-94.
65. Tallentire VR, Smith SE, Skinner J, Cameron HS. Understanding the behaviour of newly qualified doctors in acute care contexts. *Med Educ.* 2011;45:995-1005.
66. Westerman M, Teunissen PW, Vleuten van der CPM et al. Understanding the transition from resident to attending physician: a transdisciplinary, qualitative study. *Acad Med.* 2010;85:1914-9.
67. Feldman DC. A contingency theory of socialization. *Adm sci q.* 1976;21:433-52.
68. Yellin LL. Role Acquisition as a Social Process. *Sociological Inquiry.* 1999;69:236-56.
69. Morrison EW. Newcomers' relationships: the role of social network ties during socialization. *Acad Manage J.* 2002;45:1149-60.
70. Fang R, Duffy MK, Shaw JD. The Organizational Socialization Process: Review and Development of a Social Capital Model. *Journal of Management.* 2011;37:127-52.
71. Becker HS, Blanche G, Hughes EC, Strauss AL. *Boys in White: Student Culture in Medical School.* Chicago: University of Chicago Press; 1961.
72. Piaget J. *The psychology of intelligence.* London: Routledge; 1950.
73. Newell A, Simon HA. *Human problem solving.* Englewood Cliffs, NJ: Prentice Hall; 1972.
74. Kozulin A, Gindis B, Ageyev VS, Miller SM. Socio-cultural theory and education: Students, teachers and knowledge. In: Kozulin A, Gindis B, Ageyev V.S., Miller S, eds. *Vygotsky's Educational Theory in Cultural Context.* Cambridge: Cambridge University Press; 2003.
75. Vygotsky LS. Interaction between learning and development. M.Lopez- Morillas,(Trans). In: Cole M, John-Steiner V, Scribner S, Souberman E, eds. *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press; 1978:79-91.
76. Chaiklin S. The zone of proximal development in Vygotsky's analysis of learning and instruction. In: Kozulin A, Gindis B, Ageyev V.S., Miller S, eds. *Vygotsky's Educational Theory in Cultural Context.* Cambridge: Cambridge University Press; 2003.

References for table 2

1. Sandler M. Training experience and views of recently appointed consultants in geriatric medicine. *J R Coll Physicians Lond* 1992 Jan;26(1):44-6.
2. Lenton SW, Dison PJ, Haines LC. A BPA survey of recently appointed consultants. *Arch Dis Child* 1994 Oct;71(4):381-5.
3. Loane R, Barker A. Newly appointed consultants in old age psychiatry and the adequacy of higher training. *Psychiatric Bulletin* 1996;20:388-90.
4. Haddad P, Creed F. Skills training for senior registrars. Results of a survey of recently appointed consultants. *Psychiatric Bulletin* 1996;20:391-4.
5. Roberts G, Moore B, Coles C. mentoring for newly appointed consultant psychiatrists. *Psychiatric Bulletin* 2002;26:106-9.
6. MacDonald J, Cole J. Trainee to trained: helping senior psychiatric trainees make the transition to consultant. *Med Educ* 2004 Apr;38(4):340-8.
7. Crowe A. Surviving and thriving in the early years as a new consultant physician. *Clin Med* 2004;185-6.
8. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J* 2005 Aug;81(958):519-23.
9. Naeem A, Rutherford J, Kenn C. From specialist registrar to consultant: permission to land? *Psychiatric Bulletin* 2005;29:348-51.
10. Ivbijaro G, Abouharb T, Gikunoo M. Higher professional education: self and professional development--the London experience. *Eur J Gen Pract* 2005 Jun;11(2):64-7.
11. Leslie K, Lingard L, Whyte S. Junior faculty experiences with informal mentoring. *Med Teach* 2005 Dec;27(8):693-8.
12. McKinstry B, Macnicol M, Elliot K, Macpherson S. The transition from learner to provider/teacher: the learning needs of new orthopaedic consultants. *BMC Med Educ* 2005;5(1):17.
13. Wilkie G, Raffaelli D. In the deep and: making the transition from SpR to consultant. *Advances in Psychiatric Treatment* 2005;11:107-14.
14. Card SE, Snell L, O'Brien B. Are Canadian General Internal Medicine training program graduates well prepared for their future careers? *BMC Med Educ* 2006;6:56.
15. Benstead K. What is valuable for specialist registrars to learn in order to become good consultant clinical oncologists? *Clin Oncol (R Coll Radiol)* 2006 Sep;18(7):549-54.
16. Beckett M., Hulbert D., Brown R. The new consultant survey 2005. *Emerg Med J* 2006;23:461-3.
17. Kite S, Salt S. Transition from SpR to consultant: a survey of training needs in palliative medicine. *Palliat Med* 2006 Jan;20(1):53.
18. Lieberman L, Hilliard RI. How well do paediatric residency programmes prepare residents for clinical practice and their future careers? *Med Educ* 2006 Jun;40(6):539-46.
19. McDonnell PJ, Kirwan TJ, Brinton GS, Golnik KC, Melendez RF, Parke DW, et al. Perceptions of recent ophthalmology residency graduates regarding preparation for practice. *Ophthalmology* 2007 Feb;114(2):387-91.
20. Robinson G, Morreau J, Leighton M, Beasley R. New hospital consultant: surviving a difficult period. *N Z Med J* 2007;120(1259):U2662.
21. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)* 2009 Jul 8;70(7):410-4.
22. Morrow G, Illing J, Burford B, Kergon C. Are specialist registrars fully prepared for the role of consultant? *The clinical teacher* 2009;6:87-90.

**Opportunity or threat;
the ambiguity of the
consequences of transitions in
medical education**

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Abstract

Objectives

The alleged medical education continuum is interrupted by a number of major transitions. After starting medical school the first transition students encounter is that from non-clinical to clinical training. The second transition is that of graduated student to junior doctor or specialist trainee, and the third concerns the specialist trainee's transition to medical specialist. As a first step towards a better understanding of the effects of transitions, this paper provides a critical overview of how these transitions have been conceptualised in the medical education domain. The findings are complemented with perspectives from the fields of transitional psychology and organisational socialization. The transition into medical school is not reviewed.

Methods

Using the term 'transition' six leading medical education journals were searched for relevant articles. A snowballing technique on the reference lists of the 44 relevant articles yielded 29 additional publications. Studies were reviewed and categorised as representing objectifying, clarifying, or descriptive and/or justifying research.

Results

When students enter clinical training, they need to relearn what they thought they knew and they must learn new things in a more self-directed way. As junior doctors or specialist trainees, their main challenges involve handling the many responsibilities that accompany the delivery of patient care while simultaneously learning from the process of providing that care. As medical specialists, new non-medical tasks and decisions on how to delegate responsibilities become issues.

Discussion

Research on transitions has objectified the challenges students and doctors face. Clarifying studies often lack conceptual frameworks that could help us to gain deeper insight into the observed phenomena. Psychology offers valuable theoretical perspectives that are applicable to medical education transitions. To transform a transition from a threat to a learning opportunity, medical education should assist students and doctors in developing the coping skills they need to effectively deal with the challenges presented by new environments.

Introduction

The trajectory that leads to qualification as a medical specialist is rewarding, but also long and challenging. After finishing secondary education, and in some countries only after graduating from prerequisite university courses, students can enter medical school. A period of 4 – 6 years of medical school leads to graduation as a medical doctor. Subsequently, many doctors will embark on a postgraduate training programme leading to certification to practise as a medical specialist. This trajectory is referred to as the medical education continuum.¹ In reality it is interrupted by a number of major transitions. According to Petersdorf, the components of medical education are like children's building blocks, 'they are piled one atop of another to make a tower that from a distance may look like a coherent whole, but from a closer perspective reveals the discrete nature of the components and a fragmented overall structure.'² The current medical education trajectory presents learners with several major transitions. Students can take a variety of routes before they are allowed to enter undergraduate medical education, which differ both within and between countries. Research in this area has mainly focused on the state of being a first-year medical student rather than on the transition process.³ For this paper, therefore, we chose to limit ourselves to transition processes that fall completely within the medical education continuum. The first transition within the medical education continuum occurs when non-clinical medical students start the clinical part of their training.⁴ The second concerns the graduated student who, for the first time, takes (supervised) responsibility for the care of patients as a junior doctor or specialist trainee.⁵ The third transition takes place when the specialist trainee finishes postgraduate training and tackles the demands of a post as a medical specialist.⁶

The origin of these transitions can be traced back to the effects of Abraham Flexner's report on the state of medical education in the USA and Canada.⁷ In 1910, when Flexner wrote his report, the scientific method was beginning to find its way into medicine. Flexner proposed that, once students have been properly trained in 'formal analytic reasoning, the kind of thinking integral to the natural sciences', the pre-clinical stage of training should be followed by a clinical phase in teaching hospitals.⁸ There, students could learn how to collect and evaluate clinical data from patients under the guidance of excellent clinicians. Flexner argued: 'The facts are locked up in the patient. To the patient, therefore, he [the medical student] must go.'⁷ This gave rise to the transition from non-clinical to clinical training. At the beginning of the 20th century, postgraduate schools were essentially undergraduate repair shops.⁷ Flexner already foresaw the usefulness of advanced training for a selected group of 'specialist' doctors who were 'inclined to devote themselves more or less exclusively to some particular line of work.'⁷ However, it was the rapid growth in biomedical knowledge combined with an increase in public demand for specialist care that led to an ever-increasing specialization within medicine.⁹ Nowadays almost all doctors embark on some sort of postgraduate training before being licensed to work independently.

This results in a transition when the graduate starts postgraduate training and another when he or she commences work as a medical specialist.

A transition is not a moment, but rather a dynamic process in which the individual moves from one set of circumstances to another. Large changes in, for instance, expectancies, tasks, or responsibilities, as perceived by the newcomer, require coping strategies in order to function competently in the new environment.¹⁰ In coping with major changes, individuals face new challenges, opportunities, stress, and a range of emotions. The medical education literature offers compelling evidence of the association between transitions and detrimental levels of stress and negative emotions.¹¹⁻¹³ However, transition periods may also present individuals with an opportunity for rapid personal development.^{10,14} The successful transfer of knowledge and skills may be a good measure of how well individuals are prepared for a transition by their previous education.¹⁵ The ambiguity in the effects of transitions deserves further exploration.¹⁴ As a first step, this paper provides a critical synthesis of the medical education literature on the role of transitions in the development of medical doctors.¹⁶ This will identify how medical educators currently conceptualise transitions. This paper is not a systematic review. Rather, we have followed Eva,¹⁶ who claims a good education research literature review 'is one that presents a critical synthesis of a variety of literatures, identifies knowledge that is well established, highlights gaps in understanding, and provides some guidance regarding what remains to be understood. First, we focus on the three major transitions discussed above and then we complement our findings with perspectives on transitions from the fields of transitional psychology and organizational socialisation.

Methods

In order to obtain a representative overview of the main research topics and findings in the medical education domain, we used PubMed to search for articles published until December 2009, in six medical education journals (*Academic Medicine*; *Advances in Health Sciences Education*; *BMC Medical Education*; *Medical Education*; *Medical Teacher*; *Teaching and Learning in Medicine*) using the deliberately broad term 'transition'. This search yielded 125 publications. To assess their relevance (which meant original research articles or descriptive reports addressing one of the transitions of interest), both authors reviewed the abstracts and, if necessary, the full text; this narrowed the results to 44 articles. By searching the references of these 44 articles and using the reference databases of the authors, 29 additional relevant articles were retrieved. An analysis of all 73 publications revealed three groups of research. In addition to the types of research described by Cook *et al.*,¹⁷ we also identified a large body of objectifying research. Objectifying research aims to assess the level of change students or doctors face during transitions. In line with Cook *et al.*,¹⁷ we also found a number of clarification studies that aimed to develop understanding of how the transition process works under different circumstances. The third group of research described

or justified educational interventions aimed to prevent or help people cope with transitions. Descriptive studies describe a novel educational intervention, whereas justification research also evaluates the intervention.¹⁷ Based on this categorization of the literature, the following paragraphs provide an overview of the research on each of the three major transitions in medical education (Table 1).

Table 1. Research on transitions per category

Transition	Research objectifying the level of change	Research clarifying (aspects of) the transition process	Descriptive or justifying research on educational interventions
Non-clinical to clinical student	Alexander & Haldane 1979 Helmers <i>et al.</i> 1997 Michau <i>et al.</i> 2009 Moss & McManus 1992 Prince <i>et al.</i> 2005 Shacklady <i>et al.</i> 2009 Walker <i>et al.</i> 1981	Babaria <i>et al.</i> 2009 Hayes <i>et al.</i> 2004 Michau <i>et al.</i> 2009 O'Brien <i>et al.</i> 2007 Pitkala & Mantyranta 2003 Prince <i>et al.</i> 2000 Radcliffe & Lester 2003 Shacklady <i>et al.</i> 2009 van Hell <i>et al.</i> 2008 White 2007	Chittenden <i>et al.</i> 2009 Chumley <i>et al.</i> 2005 Hayes <i>et al.</i> 2004 Jacobs <i>et al.</i> 2005 Poncelet & O'Brien 2008 van Gessel <i>et al.</i> 2003 White 2007
Medical student to junior doctor or specialist trainee	Bogg <i>et al.</i> 2001 Cave <i>et al.</i> 2007 Clack 1994 Firth-Cozens 1987 Gillard <i>et al.</i> 1993 Goldacre <i>et al.</i> 2003 Hannon 2000 Lempp <i>et al.</i> 2004 Nikendei <i>et al.</i> 2008 Roche <i>et al.</i> 1997 Wall <i>et al.</i> 2006 Woodward & Ferrier 1983	Brown <i>et al.</i> 2007 Calman & Donaldson 1991 Cave <i>et al.</i> 2009 Hesketh <i>et al.</i> 2003 Hoifodt <i>et al.</i> 2007 Lempp <i>et al.</i> 2004 Prince <i>et al.</i> 2004 Wilkinson & Harris 2002	Berridge <i>et al.</i> 2007 Conn <i>et al.</i> 2003 Fisher <i>et al.</i> 2007 Hill <i>et al.</i> 1998 Jones <i>et al.</i> 2002 Lambert & Goldacre 2006 Lempp <i>et al.</i> 2005 Lyss-Lerman <i>et al.</i> 2009 O'Neill <i>et al.</i> 2003 Rosengarten <i>et al.</i> 2004 Whitehouse <i>et al.</i> 2002 Wijnen-Meijer <i>et al.</i> 2009 Willis <i>et al.</i> 2003 Wipf <i>et al.</i> 1995
Specialist registrar to consultant	Beckett <i>et al.</i> 2006 Brown <i>et al.</i> 2009 Card <i>et al.</i> 2006 Haddad & Creed 1996 Horsley <i>et al.</i> 1996 Kite & Salt 2006 Lenton <i>et al.</i> 1994 Loane & Barker 1996 McKinstry <i>et al.</i> 2005 Morrow <i>et al.</i> 2009 Sandler 1992	Benstead 2006 Leslie <i>et al.</i> 2005 Wilkie & Raffaelli 2005	Crowe 2004 Higgins <i>et al.</i> 2005 Ivbijaro <i>et al.</i> 2005 MacDonald & Cole 2004 Roberts <i>et al.</i> 2002 Robinson <i>et al.</i> 2007

Research and review articles relating to 'transition' (all Fields) published in *Medical Education* [19 (articles retained for review/31), *Medical Teacher* (11/27), *Academic Medicine* (8/51), *Advances in Health Sciences Education* (2/4), *BMC Medical Education* (3/5), *Teaching and Learning in Medicine* (1/7). A search of the references of the 44 articles enabled the retrieval of an additional 29 relevant articles. The final list includes 73 articles.

Results

The transition from non-clinical to clinical medical student

Researchers investigating the transition from the non-clinical to the clinical stages of training have used focus groups¹⁴ and interviews^{14,18,19}, as well as a range of self-report questionnaires.^{4,20-22} Most studies draw on students' perspectives to objectify the changes. Students who start clinical rotations anticipate a range of anxiety provoking tasks, such as interactions with senior staff on ward rounds, but also trivial tasks such as performing phlebotomy.²² In retrospect, approximately 44% of students perceive the transition to clinical training as too abrupt and insufficiently facilitated.^{4,23} Using a questionnaire survey, Prince *et al.*⁴ identified 'a sudden increase in workload, insufficient time for studying, difficulty putting theory into practice, perceived shortcomings in basic science knowledge, and the necessity to adopt different learning strategies' as the main problems encountered by students.

Clarifying research has focused on how personal and contextual factors influence transitions. A main stressor is students' initial struggle to understand what their roles and responsibilities in a clinical setting are.^{14,18} This is partly the result of their previous educational experiences; students enter clinical environments with an expectation that they will 'be educated' and find themselves in an environment that requires experiential and more self-directed learning.^{18,21} Many students feel uncertain about whether they have what it takes to 'fit in' as a result of their lack of clinical skills experience, difficulty in applying theoretical knowledge to clinical reasoning, and the continuous challenge they face to adjust to the different clinical cultures.^{4,14,19,21} By contrast, van Hell *et al.*²⁴ showed that pre-clinical knowledge and skills did not influence the perceived difficulty of the transition nor students' performance during their first weeks in clinical training, which suggests that other factors, such as the individual's ability to adjust to new environments, are more important. The transition may be more difficult for women.^{18,21} According to Babaria *et al.*,¹⁸ women feel they have to prove their competence to work on patients more than their male counterparts. Shacklady *et al.*²⁰ found that, compared with non-mature students (median age 18), mature students (median age 22) were 'less likely to feel confused, daunted, or overwhelmed' as a result of previous life experiences and higher levels of confidence. Positive aspects of the transition refer to the motivation clinical students derive from real-patient learning and the value of using more active learning strategies.²⁵

The majority of justification studies investigate the benefits of problem-based learning (PBL) over traditional lecture-based curricula. The results are mixed: students from a PBL curriculum appear to be more confident, less anxious, and less intimidated by the clinical workplace, but 'PBL fails to bring about the integration of basic and applied sciences, which it is supposed to enhance.'^{21,25} White²⁶ looked further into the issue by focusing on self-regulated learning strategies. In semi-

structured interviews, he found that students with self-regulating capacities, which are more likely to result from a PBL curriculum, are more comfortable with having autonomy and control over their own learning.²⁶ The recognition that undergraduate education may not prepare students optimally for clinical training has led many medical schools to offer transition courses.^{27,28} These courses provide information on the new tasks and skills clinical students will be required to perform, review topics that have already been covered, and address student well-being and coping strategies.²⁷ Studies on the efficacy of transition courses are sparse. Overall, students appear to be satisfied with such courses, especially when they offer hands-on experiences and practical tips.^{29,30} Many medical schools now have integrated clinical experiences in the first years of medical school.³¹ The effects of vertically integrated curricula are under evaluation in relation to, for instance, students' transition into postgraduate training programmes.³²

The transition from medical student to junior doctor or specialist trainee

Studies on the transition from medical student to doctor also cover a range of qualitative and quantitative research designs, with some studies adopting mixed-method approaches.^{33,34} In some countries, recently graduated medical doctors work as junior doctors for at least 1 year before starting a postgraduate training programme. The following section discusses both the transition to junior doctor and the (immediate) transition into a specialist training programme. Using the Maslach Burnout Inventory (MBI), Bogg *et al.*¹¹ identified that 25% of pre-registration house officers (PRHOs) experience a high level of burnout, which is comparable with findings from research on depression rates among PRHOs almost 15 years earlier.³⁵ Extensive surveys in the UK and Australia as well as qualitative studies have indicated that many doctors, within 2 years after graduation, feel they have not been trained adequately in management aspects of the job, such as prioritising tasks, communication skills, including those required for breaking bad news, and, to a lesser extent, in the technical and procedural aspects of the job.^{11,33,36-39} However, more recent studies found opposite results, indicating that junior doctors and specialist trainees appear to be best prepared in communication skills and least skilled in basic medical tasks such as initiating appropriate prescriptions.⁴⁰⁻⁴² This has led some observers to question whether 'we have gone too far in teaching effective communication at the expense of basic doctoring skills.'⁴⁰

Clarifying research makes it clear that the stakes are high for new doctors starting in their first post because this period tests an 'individual's fortitude to work in his or her chosen profession'.³⁴ The positive effects of the transition concern the rapid development of strategies with which to cope with everyday clinical practice and the development of more professional responsibility in the relationships with patients.³⁸ By contrast, Prince *et al.*⁴¹ highlighted that increased responsibilities and altered relationships with patients also adds to feelings of uncertainty. Wilkinson and Harris⁴³ studied borderline junior doctors and found those who lack flexibility, are shy or appear unmotivated, to be at risk of not developing into their professional role in a health

care team. Junior doctors perceive a lack of support from staff, feel it is unfair to patients that they may provide suboptimal care, and realise they do not use their work experience optimally.^{33,38,39} Among other variables, Cave *et al.*⁴⁴ looked at the relationship between preparedness for practice and personality traits; individuals who scored high on conscientiousness and extraversion felt relatively better prepared, whereas high scores on neuroticism were associated with lower preparedness. In a multiple regression analysis, the largest contributors to feeling prepared were the relevance of undergraduate training to life as a newly graduated doctor and the ease with which doctors could get help at work.⁴⁴

Several studies have shown that graduates from PBL curricula feel better prepared and are better in dealing with uncertainty than their peers from traditional curricula.⁴⁵⁻⁴⁸ Other descriptive and justification studies deal with preparatory courses in the final months before graduation. Based on workplace learning concepts, most medical schools offer an introduction to work as a junior doctor, for instance by shadowing.^{49,50} Local induction courses for particular clinical placements and educational interventions aimed at specific medical tasks are also available and include, for instance, a 1-day programme on which participants can meet with staff and learn context-specific routines.⁵¹⁻⁵⁴ Most interventions appear to lead to an increase in confidence and performance, although long-term follow-up is lacking.

The transition from specialist trainee to medical specialist

Research on the transition from specialist trainee to medical specialist predominantly consists of objectifying and descriptive articles. Nearly all objectifying studies used quantitative methods, mainly self-report questionnaires, and found that specialists feel well prepared for their clinical tasks.⁵⁵ However, many do not feel competent in the non-clinical tasks of their work, such as teaching skills and managerial and financial skills.^{55,56} Most educational interventions focus on these topics.⁵⁷ Brown *et al.*¹³ argue that the deficit in non-clinical skills leads to a more challenging and stressful transition. All three clarification studies used qualitative research methods in the form of semi-structured interviews or focus groups. These studies indicate that new medical specialists enter a process of personal development in which, besides new (non-clinical) tasks, they face emotional and personal challenges which they must conquer.^{58,59} These papers are limited by the fact that they report on transitions in highly specialised medical disciplines, which hampers their transferability to a broader range of disciplines.

Discussion

The psychology of transitions

Surprisingly, in studying transitions, medical education researchers have seldom used conceptual frameworks from the field of organisational socialisation or from transitional psychology. Organisational socialisation studies the process of assuming a new role within an organisation.⁶⁰ Transitional psychologists take a more individualistic approach and conceptualize transitions as processes of developing new behavioural responses to cope with some form of discontinuity in an individual's life space.⁶¹ Perspectives from these scientific disciplines can enhance our understanding of transitions in the medical domain. To illustrate this, we offer two examples. Morrison,⁶² an organisational socialisation researcher, argues that newcomers in an organisation strive for development in four areas: task mastery, role clarification, acculturation, and social integration. This resonates with the problems students face when they embark their clinical training phase. In a longitudinal study of five large accounting firms, Morrison⁶² found that newcomers' who proactively asked for information, such as on performance feedback and normative information, scored higher on task mastery, role clarity and social integration. This raises questions about whether proactively looking for performance and normative information also helps medical students to benefit from transitional periods. This would explain why pre-clinical knowledge and skills do not influence the perceived difficulty of the transition nor students' performance during their first weeks in clinical training.²⁴ From a transitional psychology perspective, Nicholson¹⁰ identifies preparation, encounter, adjustment and stabilisation as the four phases experienced by individuals who go through a transition. In the transition to medical specialist, postgraduate training is the preparation phase. The period of encounter signifies the first months in post as a new specialist. As a consequence of facing new challenges and responsibilities, the new specialist will strive to make adjustments to his or her new role or will adapt to it. Research shows that role innovation, high self-appraised performance, and newcomers' self-esteem are correlated with individualised socialisation (i.e. the organisation uses the newcomer's abilities and characteristics for organisational development). Institutionalised socialization, by contrast, focuses on the assimilation of newcomers into the existing organisational structures and correlates with higher organisational commitment and job satisfaction.^{63,64} How these processes play out in the medical domain is an area for future research.

Implications

In our synthesis of the literature on transitions in the medical education continuum, a number of consistent findings become apparent. When they begin the clinical part of training, many students perceive difficulties in interacting with patients and medical staff. Moreover, they need to relearn what they thought they knew and to learn new material in a more self-directed way. In the early years of medical practise, one in four new doctors develop burnout. The main problems

in this phase concern the bearing of the many responsibilities that accompany the delivery of patient care and the need to take on more and more tasks independently. Newly graduated doctors need to provide safe and efficient patient care while learning from the process of doing so. Once they become expert in this as specialist trainees, they start working as medical specialist. The financial aspects of patient care and responsibility for the supervision and training of other doctors then takes centre stage.

This paper shows that in researching transitions, medical educators mainly resorted to the perspective of the transitioning person. Research on, for instance, the organisational and team consequences of accommodating students on rotations or adjusting to the introduction of a new medical specialist, is lacking. The relatively small number of clarifying research studies that we found has not (yet) resulted in overarching conceptual models. Creating more theory-driven research that builds on concepts from the field of psychology might address this. We agree with O'Brien *et al.*¹⁴ that 'medical educators are relatively unsophisticated at distinguishing between formative struggles that advance learning and adverse struggles that distract [from] or impede learning.' This impedes our ability to present clear recommendations for successful transitions. Longitudinal research, following cohorts of students as they develop into medical specialists could help distinguish constructive from deconstructive struggles. Another pertinent issue for further research concerns the gender difference in transitions, especially given the marked increase of female students in many countries.

Most medical schools try to eliminate transitions by designing a curriculum with 'early integration of clinical skills, placed in context, well supported by clinical and communication skills teachers'.²¹ A systematic review supports the view that early experience in clinical and community settings can help to avoid an abrupt transition into the clinical environment.⁶⁵ Of course, optimally preparing students and doctors for the future steps in their career is the ultimate goal of education. However, no matter how problem-based, vertically integrated, or workplace-based medical curricula may become, changes and transitions are inevitable careers in medicine.⁶⁶ As White and Hannon have shown, optimally preparing individuals for a transition is also a matter of helping them to cope with changes, to recognise learning opportunities and to take responsibility for their own learning processes and outcomes.^{26,33} Transitions can lead to higher job satisfaction, greater self esteem, and independence, less intention to quit, and the development of new coping and learning strategies.⁶⁷ To harness the educational power of new environments, educators might take advantage of well-established theories, for instance Vygotsky's concept of the 'zone of proximal development', in which mentors gradually lessen the support offered to newcomers.⁶⁸

Limitations

In this paper we provide an overview of the way transitions are conceptualized within the field of medical education. Our focus on the 'transition' literature is inevitably limited by the fact that we did not include research on related topics. For instance, literature on expertise development in workplace settings might have added additional viewpoints. Moreover, we used PubMed to search six medical education journals only. However, the aim of this paper was to understand how medical educators conceptualise transitions. In our search for other relevant studies we extended our initial search using a snowballing technique on the reference lists of the initial articles. Although our findings may help to optimise the transition into medical school, we did not review the literature relevant to that transition in this paper.

Conclusions

A century after the Flexner report, the optimal preparation of students for their role as doctors is still paramount. This synthesis of the literature provides insight into how researchers approach the changes students and doctors face when they enter new phases in their careers. In doing so, it enables us to identify gaps in the current state of knowledge on transitions. In conclusion, transitions can represent both threats and opportunities. Each transition involves a 'fundamental re-examination of who and what we are, even if this processing is occurring at a largely unconscious level'.⁵⁹ This leads to feelings of uncertainty and inspires individuals either to develop new modes of behaviour or to try to change their context. In this process of adjustment lies an opportunity to learn. It is up to medical educators to provide students and doctors with the tools they require to recognise and seize such opportunities.

References

1. Molenaar WM, Zanting A, van Beukelen P et al. A framework of teaching competencies across the medical education continuum. *Med Teach*. 2009;31:390-6.
2. Petersdorf RG. Medical curriculum, training, and the continuum of medical education. *J R Soc Med*. 1994;87 Suppl 22:47-9.
3. Guthrie EA, Black D, Shaw CM, Hamilton J, Creed FH, Tomenson B. Embarking upon a medical career: psychological morbidity in first year medical students. *Med Educ*. 1995;29:337-41.
4. Prince KJ, Boshuizen HP, van d, V, Scherpier AJ. Students' opinions about their preparation for clinical practice. *Med Educ*. 2005;39:704-12.
5. Clack GB. Medical graduates evaluate the effectiveness of their education. *Med Educ*. 1994;28:418-31.
6. Robinson G, Morreau J, Leighton M, Beasley R. New hospital consultant: surviving a difficult period. *N Z Med J*. 2007;120: (1259) U2662.
7. Flexner A. *Medical Education in the United States and Canada: A report to the Carnegie Foundation for the Advancement of Teaching [Carnegie Foundation Bulletin No.4]*. New York: NY: Carnegie Foundation for the Advancement of Teaching 1910.
8. Cooke M, Irby DM, Sullivan W, Ludmerer KM. American Medical Education 100 Years after the Flexner Report. *N Engl J Med*. 2006;355:1339-44.
9. Ludmerer KM, Johns MME. Reforming Graduate Medical Education. *JAMA* 2005;294:1083-7.
10. Nicholson N. A theory of work role transitions. *Adm sci q*. 1984;29:172-91.
11. Bogg J, Gibbs T, Bundred P. Training, job demands and mental health of pre-registration house officers. *Med Educ*. 2001;35:590-5.
12. Helmers KF, Danoff D, Steinert Y, Leyton M, Young SN. Stress and depressed mood in medical students, law students, and graduate students at McGill University. *Acad Med*. 1997;72:708-14.
13. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)*. 2009;70:410-4.
14. O'Brien B, Cooke M, Irby DM. Perceptions and attributions of third-year student struggles in clerkships: do students and clerkship directors agree? *Acad Med*. 2007;82:970-8.
15. Teunissen PW, Dornan T. Lifelong learning at work. *BMJ*. 2008;336:667-9.
16. Eva KW. On the limits of systematicity. *Med Educ*. 2008;42:852-3.
17. Cook DA, Bordage G, Schmidt HG. Description, justification and clarification: a framework for classifying the purposes of research in medical education. *Med Educ*. 2008;42:128-33.
18. Babaria P, Abedin S, Nunez-Smith M. The effect of gender on the clinical clerkship experiences of female medical students: results from a qualitative study. *Acad Med*. 2009;84:859-66.
19. Radcliffe C, Lester H. Perceived stress during undergraduate medical training: a qualitative study. *Med Educ*. 2003;37:32-8.
20. Shacklady J, Holmes E, Mason G, Davies I, Dornan T. Maturity and medical students' ease of transition into the clinical environment. *Med Teach*. 2009;31:621-6.
21. Hayes K, Feather A, Hall A et al. Anxiety in medical students: is preparation for full-time clinical attachments more dependent upon differences in maturity or on educational programmes for undergraduate and graduate entry students? *Med Educ*. 2004;38:1154-63.
22. Moss F, McManus IC. The anxieties of new clinical students. *Med Educ*. 1992;26:17-20.
23. Walker LG, Haldane JD, Alexander DA. A medical curriculum: evaluation by final-year students. *Med Educ*. 1981;15:377-82.
24. van Hell EA, Kuks JB, Schonrock-Adema J, van Lohuizen MT, Cohen-Schotanus J. Transition to clinical training: influence of pre-clinical knowledge and skills, and consequences for clinical performance. *Med Educ*. 2008;42:830-7.
25. Prince KJ, Van De Wiel M, Scherpier AJ, van der Vleuten CPM, Boshuizen HP. A Qualitative Analysis of the Transition from Theory to Practice in Undergraduate Training in a PBL-Medical School. *Adv Health Sci Educ Theory Pract*. 2000;5:105-16.
26. White CB. Smoothing out transitions: how pedagogy influences medical students' achievement of self-regulated learning goals. *Adv Health Sci Educ Theory Pract*. 2007;12:279-97.

27. Poncelet A, O'Brien B. Preparing medical students for clerkships: a descriptive analysis of transition courses. *Acad Med*. 2008;83:444-51.
28. Van Gessel E, Nendaz MR, Vermeulen B, Junod A, Vu NV. Development of clinical reasoning from the basic sciences to the clerkships: a longitudinal assessment of medical students' needs and self-perception after a transitional learning unit. *Med Educ*. 2003;37:966-74.
29. Jacobs JC, Bolhuis S, Bulte JA, Laan R, Holdrinet RS. Starting learning in medical practice: an evaluation of a new Introductory Clerkship. *Med Teach*. 2005;27:408-14.
30. Chittenden EH, Henry D, Saxena V, Loeser H, O'Sullivan PS. Transitional clerkship: an experiential course based on workplace learning theory. *Acad Med*. 2009;84:872-6.
31. Dornan T, Bundy C. What can experience add to early medical education? Consensus survey. *BMJ*. 2004;329:834-9.
32. Wijnen-Meijer M, Ten Cate OT, Rademakers JJ, van der SM, Borleffs JC. The influence of a vertically integrated curriculum on the transition to postgraduate training. *Med Teach*. 2009;31:528-32.
33. Hannon FB. A national medical education needs' assessment of interns and the development of an intern education and training programme. *Med Educ*. 2000;34:275-84.
34. Brown J, Chapman T, Graham D. Becoming a new doctor: a learning or survival exercise? *Med Educ*. 2007;41:653-60.
35. Firth-Cozens J. Emotional distress in junior house officers. *Br Med J (Clin Res Ed)*. 1987;295:533-6.
36. Roche AM, Sanson-Fisher RW, Cockburn J. Training experiences immediately after medical school. *Med Educ*. 1997;31:9-16.
37. Gillard JH, Dent TH, Aarons EJ, Smyth-Pigott PJ, Nicholls MW. Preregistration house officers in eight English regions: survey of quality of training. *BMJ*. 1993;307:1180-4.
38. Lempp H, Cochrane M, Seabrook M, Rees J. Impact of educational preparation on medical students in transition from final year to PRHO year: a qualitative evaluation of final-year training following the introduction of a new year 5 curriculum in a London medical school. *Med Teach*. 2004;26:276-8.
39. Calman KC, Donaldson M. The pre-registration house officer year: a critical incident study. *Med Educ*. 1991;25:51-9.
40. Wall D, Bolshaw A, Carolan J. From undergraduate medical education to pre-registration house officer year: how prepared are students? *Med Teach*. 2006;28:435-9.
41. Prince KJ, Van De WM, Vleuten van der C, Boshuizen HP, Scherpbier AJ. Junior Doctors' Opinions about the Transition from Medical School to Clinical Practice: A Change of Environment. *Education for Health*. 2004;7:323-31.
42. Nikendei C, Kraus B, Schrauth M, Briem S, Junger J. Ward rounds: how prepared are future doctors? *Med Teach*. 2008;30:88-91.
43. Wilkinson TJ, Harris P. The transition out of medical school - a qualitative study of descriptions of borderline trainee interns. *Med Educ*. 2002;36:466-71.
44. Cave J, Woolf K, Jones A, Dacre J. Easing the transition from student to doctor: how can medical schools help prepare their graduates for starting work? *Med Teach*. 2009;31:403-8.
45. Hill J, Rolfe IE, Pearson SA, Heathcote A. Do junior doctors feel they are prepared for hospital practice? A study of graduates from traditional and non-traditional medical schools. *Med Educ*. 1998;32:19-24.
46. Willis SC, Jones A, O'Neill PA. Can undergraduate education have an effect on the ways in which pre-registration house officers conceptualise communication? *Med Educ*. 2003;37:603-8.
47. Jones A, McArdle PJ, O'Neill PA. Perceptions of how well graduates are prepared for the role of pre-registration house officer: a comparison of outcomes from a traditional and an integrated PBL curriculum. *Med Educ*. 2002;36:16-25.
48. O'Neill PA, Jones A, Willis SC, McArdle PJ. Does a new undergraduate curriculum based on Tomorrow's Doctors prepare house officers better for their first post? A qualitative study of the views of pre-registration house officers using critical incidents. *Med Educ*. 2003;37:1100-8.
49. Lempp H, Seabrook M, Cochrane M, Rees J. The transition from medical student to doctor: perceptions of final year students and preregistration house officers related to expected learning outcomes. *Int J Clin Pract*. 2005;59:324-9.

50. Lyss-Lerman P, Teherani A, Agaard E, Loeser H, Cooke M, Harper GM. What training is needed in the fourth year of medical school? Views of residency program directors. *Acad Med*. 2009;84:823-9.
51. Rosengarten P, Kelly L, Nestel D. A transition programme for junior doctors. *Med Educ*. 2004;38:560.
52. Conn JJ, Dodds AE, Colman PG. The transition from knowing to doing: teaching junior doctors how to use insulin in the management of diabetes mellitus. *Med Educ*. 2003;37:689-94.
53. Fisher JW, Thompson BM, Garcia AD. Integrative clinical experience: an innovative program to prepare for internship. *Teach Learn Med*. 2007;19:302-7.
54. Wipf JE, Pinsky LE, Burke W. Turning interns into senior residents: preparing residents for their teaching and leadership roles. *Acad Med*. 1995;70:591-6.
55. Beckett M, Hulbert D, Brown R. The new consultant survey 2005. *Emerg Med J*. 2006;23:461-3.
56. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
57. MacDonald J, Cole J. Trainee to trained: helping senior psychiatric trainees make the transition to consultant. *Med Educ*. 2004;38:340-8.
58. Benstead K. What is valuable for specialist registrars to learn in order to become good consultant clinical oncologists? *Clin Oncol (R Coll Radiol)*. 2006;18:549-54.
59. Wilkie G, Raffaelli D. In the deep and: making the transition from SpR to consultant. *Advances in Psychiatric Treatment*. 2005;11:107-14.
60. Fisher CD. organizational socialization: an integrative review. *Res Pers Hum Resour Manage*. 1986;4:101-45.
61. Adams J, Hayes J, Hopson B. *Transition, understanding & managing personal change*. London: Martin Robertson & Company; 1976.
62. Morrison EW. Longitudinal study of the effects of information seeking on newcomer socialization. *J Appl Psychol*. 1993;78:173-83.
63. Maanen van J, Schein E.H. Toward a theory of organizational socialization. *Res Organ Behav*. 1979;1:209-64.
64. Saks AM, Ashforth BE. Organizational Socialization: making sense of the past and present as a prologue for the future. *J Vocat Behav*. 1997;51:234-79.
65. Littlewood S, Ypinazar V, Margolis SA, Scherpbier A, Spencer J, Dornan T. Early practical experience and the social responsiveness of clinical education: systematic review. *BMJ*. 2005;331(7513):387-91.
66. Wittert GA, Nelson AJ. Medical education: revolution, devolution and evolution in curriculum philosophy and design. *Med J Aust*. 2009;191:35-7.
67. Ashforth BE, Saks AM. Socialization Tactics: Longitudinal Effects on Newcomer Adjustment. *Academy Manag J*. 1996;39:149-78.
68. Chaiklin S. The zone of proximal development in Vygotsky's analysis of learning and instruction. In: Kozulin A, Gindis B, Ageyev V.S., Miller S, eds. *Vygotsky's Educational Theory in Cultural Context*. Cambridge: Cambridge University Press; 2003; 39-64.

References for table 1

1. Alexander DA & Haldane JD. 1979, "Medical education: a student perspective", *Med Educ*, vol. 13, no. 5, pp. 336-41.
2. Babaria P, Abedin S, & Nunez-Smith M. 2009, "The effect of gender on the clinical clerkship experiences of female medical students: results from a qualitative study", *Acad.Med*, vol. 84, no. 7, pp. 859-66.
3. Beckett M, Hulbert D, & Brown R. 2006, "The new consultant survey 2005", *Emerg.Med.J*, vol. 23, pp. 461-3.
4. Benstead K. 2006, "What is valuable for specialist registrars to learn in order to become good consultant clinical oncologists?", *Clin.Oncol.(R.Coll.Radiol.)*, vol. 18, no. 7, pp. 549-54.
5. Berridge EJ, Freeth D, Sharpe J, & Roberts CM. 2007, "Bridging the gap: supporting the transition from medical student to practising doctor--a two-week preparation programme after graduation", *Med Teach*, vol. 29, no. 2-3, pp. 119-27.
6. Bogg J, Gibbs T, & Bundred P. 2001, "Training, job demands and mental health of pre-registration house officers", *Med.Educ.*, vol. 35, no. 6, pp. 590-5.
7. Brown J, Chapman T, & Graham D. 2007, "Becoming a new doctor: a learning or survival exercise?", *Med.Educ.*, vol. 41, no. 7, pp. 653-60.
8. Brown J, Ryland I, Shaw N, & Graham D. 2009, "Working as a newly appointed consultant: a study into the transition from specialist registrar", *Br J Hosp Med (Lond)*, vol. 70, no. 7, pp. 410-4.
9. Calman KC. & Donaldson M. 1991, "The pre-registration house officer year: a critical incident study", *Med Educ*, vol. 25, no. 1, pp. 51-59.
10. Card SE, Snell L, & O'Brien B. 2006, "Are Canadian General Internal Medicine training program graduates well prepared for their future careers?", *BMC.Med Educ*, vol. 6, p. 56.
11. Cave J, Goldacre M, Lambert T, Woolf K., Jones A & Dacre J. 2007, "Newly qualified doctors' views about whether their medical school had trained them well: questionnaire surveys", *BMC.Med Educ*, vol. 7, p. 38.
12. Cave J, Woolf K, Jones A & Dacre J. 2009, "Easing the transition from student to doctor: how can medical schools help prepare their graduates for starting work?", *Med Teach*, vol. 31, no. 5, pp. 403-8.
13. Chittenden EH, Henry D, Saxena V, Loeser H & O'Sullivan, P. S. 2009, "Transitional clerkship: an experiential course based on workplace learning theory", *Acad.Med*, vol. 84, no. 7, pp. 872-6.
14. Chumley H, Olney C, Usatine R & Dobbie A. 2005, "A short transitional course can help medical students prepare for clinical learning", *Fam.Med*, vol. 37, no. 7, pp. 496-501.
15. Clack GB 1994, "Medical graduates evaluate the effectiveness of their education", *Med Educ*, vol. 28, no. 5, pp. 418-31.
16. Conn JJ, Dodds AE, & Colman PG. 2003, "The transition from knowing to doing: teaching junior doctors how to use insulin in the management of diabetes mellitus", *Med Educ*, vol. 37, no. 8, pp. 689-94.
17. Crowe A. 2004, "Surviving and thriving in the early years as a new consultant physician", *Clin Med* pp. 185-6.
18. Firth-Cozens J. 1987, "Emotional distress in junior house officers", *Br.Med.J.(Clin.Res.Ed)*, vol. 295, no. 6597, pp. 533-6.
19. Fisher JW, Thompson BM & Garcia AD. 2007, "Integrative clinical experience: an innovative program to prepare for internship", *Teach Learn.Med*, vol. 19, no. 3, pp. 302-7.
20. Gillard JH, Dent TH, Aarons EJ, Smyth-Pigott PJ & Nicholls MW. 1993, "Preregistration house officers in eight English regions: survey of quality of training", *BMJ*, vol. 307, no. 6913, pp. 1180-4.
21. Goldacre MJ, Lambert T, Evans J & Turner G. 2003, "Preregistration house officers' views on whether their experience at medical school prepared them well for their jobs: national questionnaire survey", *BMJ*, vol. 326, no. 7397, pp. 1011-2.
22. Haddad P & Creed F. 1996, "Skills training for senior registrars. Results of a survey of recently appointed consultants", *Psychiatric Bulletin*, vol. 20, pp. 391-4.

23. Hannon FB. 2000, "A national medical education needs' assessment of interns and the development of an intern education and training programme", *Med.Educ.*, vol. 34, no. 4, pp. 275-84.
24. Hayes K, Feather A, Hall A, Sedgwick P, Wannan G, Wessier-Smith A, Green T & McCrorie P. 2004, "Anxiety in medical students: is preparation for full-time clinical attachments more dependent upon differences in maturity or on educational programmes for undergraduate and graduate entry students?", *Med Educ*, vol. 38, no. 11, pp. 1154-63.
25. Helmers KF, Danoff D, Steinert Y, Leyton M & Young SN. 1997, "Stress and depressed mood in medical students, law students, and graduate students at McGill University", *Acad.Med*, vol. 72, no. 8, pp. 708-14.
26. Hesketh EA, Allan MS, Harden RM & Macpherson, S. G. 2003, "New doctors' perceptions of their educational development during their first year of postgraduate training", *Med.Teach.*, vol. 25, no. 1, pp. 67-6.
27. Higgins R, Gallen D & Whiteman S. 2005, "Meeting the non-clinical education and training needs of new consultants", *Postgrad.Med J*, vol. 81, no. 958, pp. 519-23.
28. Hill J, Rolfe IE, Pearson SA & Heathcote A. 1998, "Do junior doctors feel they are prepared for hospital practice? A study of graduates from traditional and non-traditional medical schools", *Med Educ*, vol. 32, no. 1, pp. 19-24.
29. Hoifodt TS, Talseth AG, & Olstad R. 2007, "A qualitative study of the learning processes in young physicians treating suicidal patients: from insecurity to personal pattern knowledge and self-confidence", *BMC Med Educ*, vol. 7, p. 21.
30. Horsley S, Roberts E, Barwick D, Barrow S & Allen D. 1996, "Recent trends, future needs: management training for consultants", *J Manag.Med*, vol. 10, no. 2, pp. 47-53.
31. Ivbijaro G, Abouharb T & Gikunoo M. 2005, "Higher professional education: self and professional development--the London experience", *Eur.J Gen.Pract.*, vol. 11, no. 2, pp. 64-7.
32. Jacobs JC, Bolhuis S, Bulte JA, Laan R & Holdrinet RS. 2005, "Starting learning in medical practice: an evaluation of a new Introductory Clerkship", *Med Teach*, vol. 27, no. 5, pp. 408-14.
33. Jones A, McArdle PJ & O'Neill PA. 2002, "Perceptions of how well graduates are prepared for the role of pre-registration house officer: a comparison of outcomes from a traditional and an integrated PBL curriculum", *Med Educ*, vol. 36, no. 1, pp. 16-25.
34. Kite S & Salt S. 2006, "Transition from SpR to consultant: a survey of training needs in palliative medicine", *Palliat Med*, vol. 20, no. 1, p. 53.
35. Lambert TW & Goldacre MJ. 2006, "Doctors' views about their first postgraduate year in UK medical practice: House officers in 2003", *Med.Educ.*, vol. 40, no. 11, pp. 1115-22.
36. Lempp H, Cochrane M, Seabrook M & Rees J. 2004, "Impact of educational preparation on medical students in transition from final year to PRHO year: a qualitative evaluation of final-year training following the introduction of a new year 5 curriculum in a London medical school", *Med Teach*, vol. 26, no. 3, pp. 276-8.
37. Lempp H, Seabrook M, Cochrane M & Rees J. 2005, "The transition from medical student to doctor: perceptions of final year students and preregistration house officers related to expected learning outcomes", *Int.J Clin.Pract.*, vol. 59, no. 3, pp. 324-9.
38. Lenton SW, Dison PJ & Haines LC. 1994, "A BPA survey of recently appointed consultants", *Arch. Dis.Child*, vol. 71, no. 4, pp. 381-5.
39. Leslie K, Lingard L & Whyte S. 2005, "Junior faculty experiences with informal mentoring", *Med Teach*, vol. 27, no. 8, pp. 693-8.
40. Loane R & Barker A. 1996, "Newly appointed consultants in old age psychiatry and the adequacy of higher training", *Psychiatric Bulletin*, vol. 20, pp. 388-90.
41. Lyss-Lerman P, Teherani A, Aagaard E, Loeser H, Cooke M & Harper GM. 2009, "What training is needed in the fourth year of medical school? Views of residency program directors", *Acad.Med*, vol. 84, no. 7, pp. 823-9.
42. MacDonald J & Cole J. 2004, "Trainee to trained: helping senior psychiatric trainees make the transition to consultant", *Med Educ*, vol. 38, no. 4, pp. 340-8.
43. McKinstry B, Macnicol M, Elliot K & Macpherson S. 2005, "The transition from learner to provider/teacher: the learning needs of new orthopaedic consultants", *BMC.Med Educ*, vol. 5, no. 1, p. 17.

44. Michau R, Roberts S, Williams B & Boyle M. 2009, "An investigation of theory-practice gap in undergraduate paramedic education", *BMC.Med Educ*, vol. 9, p. 23.
45. Morrow G., Illing J, Burford B & Kergon C. 2009, "Are specialist registrars fully prepared for the role of consultant?", *The clinical teacher*, vol. 6, pp. 87-90.
46. Moss F & McManus IC. 1992, "The anxieties of new clinical students", *Med Educ*, vol. 26, no. 1, pp. 17-20.
47. Nikendei C, Kraus B, Schrauth M, Briem S & Junger J. 2008, "Ward rounds: how prepared are future doctors?", *Med Teach*, vol. 30, no. 1, pp. 88-91.
48. O'Brien B, Cooke M & Irby DM. 2007, "Perceptions and attributions of third-year student struggles in clerkships: do students and clerkship directors agree?", *Acad.Med*, vol. 82, no. 10, pp. 970-8.
49. O'Neill PA, Jones A, Willis SC & McArdle PJ. 2003, "Does a new undergraduate curriculum based on Tomorrow's Doctors prepare house officers better for their first post? A qualitative study of the views of pre-registration house officers using critical incidents", *Med Educ*, vol. 37, no. 12, pp. 1100-8.
50. Pitkala KH & Mantyranta T. 2003, "Professional socialization revised: medical students' own conceptions related to adoption of the future physician's role--a qualitative study", *Med Teach*, vol. 25, no. 2, pp. 155-60.
51. Poncelet A & O'Brien B. 2008, "Preparing medical students for clerkships: a descriptive analysis of transition courses", *Acad.Med*, vol. 83, no. 5, pp. 444-51.
52. Prince KJ, Boshuizen HP, van der Vleuten CPM & Scherpbier A. 2005, "Students' opinions about their preparation for clinical practice", *Med.Educ.*, vol. 39, no. 7, pp. 704-12.
53. Prince, KJ, Van de Wiel M, Scherpbier AJ, van der Vleuten CPM & Boshuizen HP. 2000, "A Qualitative Analysis of the Transition from Theory to Practice in Undergraduate Training in a PBL-Medical School", *Adv.Health Sci.Educ.Theory.Pract.*, vol. 5, no. 2, pp. 105-16.
54. Prince KJ, Van de Wiel M, van der Vleuten, CPM, Boshuizen H & Scherpbier A. 2004, "Junior doctors' opinions about the transition from medical school to clinical practice: a change of environment", *Educ.Health (Abingdon.)*, vol. 17, no. 3, pp. 323-31.
55. Radcliffe C & Lester H. 2003, "Perceived stress during undergraduate medical training: a qualitative study", *Med Educ*, vol. 37, no. 1, pp. 32-8.
56. Roberts G, Moore B & Coles C. 2002, "mentoring for newly appointed consultant psychiatrists", *Psychiatric Bulletin*, vol. 26, pp. 106-9.
57. Robinson G, Morreau J, Leighton M, & Beasley R. 2007, "New hospital consultant: surviving a difficult period", *N Z Med J*, vol. 120, no. 1259, p. U2662.
58. Roche AM, Sanson-Fisher RW & Cockburn J. 1997, "Training experiences immediately after medical school", *Med Educ*, vol. 31, no. 1, pp. 9-16.
59. Rosengarten P, Kelly L & Nestel D. 2004, "A transition programme for junior doctors", *Med Educ*, vol. 38, no. 5, p. 560.
60. Sandler M. 1992, "Training experience and views of recently appointed consultants in geriatric medicine", *J R.Coll.Physicians Lond*, vol. 26, no. 1, pp. 44-6.
61. Shacklady J, Holmes E, Mason G, Davies I & Dornan T. 2009, "Maturity and medical students' ease of transition into the clinical environment", *Med Teach*, vol. 31, no. 7, pp. 621-6.
62. van Gessel E, Nendaz MR, Vermeulen B, Junod A & Vu NV. 2003, "Development of clinical reasoning from the basic sciences to the clerkships: a longitudinal assessment of medical students' needs and self-perception after a transitional learning unit", *Med Educ*, vol. 37, no. 11, pp. 966-74.
63. van Hell EA, Kuks JB, Schonrock-Adema J, van Lohuizen MT & Cohen-Schotanus J. 2008, "Transition to clinical training: influence of pre-clinical knowledge and skills, and consequences for clinical performance", *Med Educ*, vol. 42, no. 8, pp. 830-7.
64. Walker LG, Haldane JD & Alexander DA. 1981, "A medical curriculum: evaluation by final-year students", *Med Educ*, vol. 15, no. 6, pp. 377-82.
65. Wall D, Bolshaw A & Carolan J. 2006, "From undergraduate medical education to pre-registration house officer year: how prepared are students?", *Med Teach*, vol. 28, no. 5, pp. 435-9.
66. White CB. 2007, "Smoothing out transitions: how pedagogy influences medical students' achievement of self-regulated learning goals", *Adv.Health Sci.Educ Theory Pract*, vol. 12, no. 3, pp. 279-97.

67. Whitehouse CR, O'Neill P & Dornan T. 2002, "Building confidence for work as house officers: student experience in the final year of a new problem-based curriculum", *Med.Educ.*, vol. 36, no. 8, pp. 718-27.
68. Wijnen-Meijer M, Ten Cate OT, Rademakers JJ, Van Der SM & Borleffs JC. 2009, "The influence of a vertically integrated curriculum on the transition to postgraduate training", *Med Teach*, vol. 31, no. 11, p. e528-2
69. Wilkie G & Raffaelli D. 2005, "In at the deep end: making the transition from SpR to consultant", *Advances in Psychiatric Treatment*, vol. 11, pp. 107-14.
70. Wilkinson TJ & Harris P. 2002, "The transition out of medical school - a qualitative study of descriptions of borderline trainee interns", *Med Educ*, vol. 36, no. 5, pp. 466-71.
71. Willis SC, Jones A & O'Neill PA. 2003, "Can undergraduate education have an effect on the ways in which pre-registration house officers conceptualise communication?", *Med Educ*, vol. 37, no. 7, pp. 603-8.
72. Wipf JE, Pinsky LE & Burke W. 1995, "Turning interns into senior residents: preparing residents for their teaching and leadership roles", *Acad.Med*, vol. 70, no. 7, pp. 591-6.
73. Woodward CA & Ferrier BM. 1983, "The content of the medical curriculum at McMaster University: graduates' evaluation of their preparation for postgraduate training", *Med Educ*, vol. 17, no. 1, pp. 54-60.

**Understanding the transition
from resident to attending
physician: a transdisciplinary,
qualitative study**

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Abstract

Purpose

There is a paucity of research into the processes surrounding the transition from residency to the position of attending physician. This report retrospectively investigates the question: Are attending physicians adequately prepared and trained to perform the tasks and duties of their new position? This study aimed at formulating a conceptual framework that captures the transition and is applicable beyond discipline or location specific boundaries.

Method

Individual semi structured interviews were conducted and analyzed using a qualitative, grounded theory approach. Between January and May 2009, 14 physicians were interviewed who had commenced an attending post in internal medicine or obstetrics–gynecology between six months and two years earlier, within the Netherlands. Interviews focused on the attendings' perceptions of the transition, their socialization within the new organization, and the preparation they had received during residency training. The interview transcripts were openly coded, and through constant comparison, themes emerged. The research team discussed the results until full agreement was reached.

Results

A conceptual framework emerged from the data, consisting of three themes interacting in a longitudinal process. The framework describes how novel disruptive elements (first theme) due to the transition from resident to attending physician are perceived and acted upon (second theme), and how this directs new attendings' personal development (third theme).

Conclusions

The conceptual framework finds support in transition psychology and notions from organizational socialization literature. It provides insight into the transition from resident to attending physician that can inform measures to smooth the intense transition.

Introduction

The transition from residency to independent practice as an attending confronts physicians with a multitude of new challenges: final responsibility for patient care, management tasks, educational tasks and a new workplace with new colleagues. Research has shown that such changes can be stressful and burdensome.¹⁻⁷ The complexity of the tasks and demands of attending physician positions are increasing due to changing regulations and societal demands. In response, changes in residency programs may be an inevitable step in preparing physicians to meet new requirements. These developments require new insight into the current relationship between residency training and hospital practice as an attending. One way to gain insight into this alignment is by exploring how physicians experience the transition from resident to attending.

Insofar as medical education research has addressed career transitions, the focus has been on students and their transition from preclinical to clinical training.⁸⁻¹⁰ The transition at the end of residency has been relatively sparsely covered in the literature, and none of the published studies has resulted in an empirically founded conceptual framework.¹¹⁻¹⁷ Such a framework should preferably transcend disciplines and local situations, as recommended by Higgins et al¹⁸: “There is an urgent need to conduct empirical research on the needs of new consultants with a wider scope than local or specialty specific surveys”.

We addressed two research questions to investigate the transition from resident to attending: (1) What factors in the transition to their new position are perceived as salient by recently appointed attending physicians? (2) Are these factors unique to certain specialties, or do they have broader applicability? We aimed to represent emerging factors in a conceptual framework of the transition.

Methods

Setting

We conducted the study in the Netherlands, where residency training lasts three to six years, depending on the discipline, and is preceded by six years of undergraduate medical training. Residency programs are offered by university medical centers and general teaching hospitals. After completion of training, physicians usually take on a post as an attending in a university hospital or general (teaching) hospital.

Design

Because the transition to attending is an under-researched domain of medical education, we conducted a qualitative study using grounded theory. The grounded theory approach originates from the work of Glaser and Strauss¹⁹ and involves inductively generating a conceptual framework

or theory that is grounded in the data.^{20,21} It is therefore well suited for initial exploration of relatively underresearched areas.²² Over the years Glaser's and Strauss' ideas on grounded theory diverged.^{23,24} We used Glaser's approach, which focuses on the emergence of concepts and categories from a process of constant comparison of the data without fixed preconceptions during all phases of the research (i.e. study design, data collection, and analysis). We were prompted to use individual interviews instead of focus groups by anecdotal information that participants might be reluctant to openly share their emotionally charged experiences of the transition in a group setting.

Interview development

A tentative structure for the semistructured interviews was developed based on our research questions and an initial literature search in the domains of medical education, transition psychology, and organizational socialization. This procedure is consistent with Glaser's approach of grounded theory.²⁴ The interview structure covered perceptions of the transition to attending, the impact of the new workplace on the physician in transition, and the role of residency training as preparation for a post as an attending. The starting questions were

1. How did you perceive the transition from resident to attending?
2. Which salient issues can you identify in the transition?
3. In which way did residency training prepare you for your work as an attending?
4. How did your socialization take place within the organization?

Participants and procedure

Physicians who had become attendings for the first time between six months to two years before participation in the study were interviewed by M.W. between January and May 2009. Possible participants were identified through various contacts throughout the country. We approached 19 new attendings by e-mail; 14 agreed to participate, after which an appointment was scheduled by telephone for an interview either at their home or office. Attendings in general medicine and obstetrics and gynecology from different teaching hospitals were interviewed to widen the scope of the study beyond one discipline and location.¹⁸ This purposive sampling enabled us to identify similarities and differences between disciplines and different stages of the transition. After conducting two pilot interviews with attendings in the home institution, the wording but not the content of the first question was changed slightly. We planned the interview duration for 45 minutes, which was shown to be reasonable after the pilot interviews. We continued data collection until theoretical saturation was reached. Ethical approval was received from the local ethical committee and confidentiality was guaranteed by informed consent from participants with the understanding that the data would be processed anonymously.

Analysis

The recorded interviews were transcribed verbatim and entered into qualitative data analysis software (maxQDA, Marburg, Germany). As a respondent validation procedure, the participants were asked to comment on a one-page summary of their interview, which they received within one week after the interview.²¹ Of the 14 participants, 13 responded and 2 suggested a minor change. Analysis commenced as the data were being collected in order to facilitate exploration of newly emerging issues in subsequent interviews.²⁰ After the interviewer (M.W.) had completed the open coding of eight interview transcripts, a second researcher (P.W.T.) recoded one of the transcripts by using the codes of the first coding round. Emerging differences were discussed and resulted in a set of adjusted codes. All researchers reached full consensus on the coding system. Discrepancies that emerged mainly consisted of misinterpretation of the initial codes due to their description. A second level of analysis consisted of continuous comparison and interpretation of the codes and their interrelationships to arrive at more comprehensive categories and themes. The themes are the highest level of abstraction, showing the conceptual relationships between categories and their properties.²⁴ At this point we returned to the literature, reexamining our initial search of Medline and searching the databases PsychINFO, SocINDEX, and ERIC using the terms “transition,” “life events,” and “career change.” The research team discussed the results until full agreement was reached.

Results

Saturation was reached after 14 interviews. Participants held positions in nine different general teaching hospitals and had done their residencies in six different university hospitals. Seven participants (three male, four female) were attendings in internal medicine and seven within obstetrics and gynecology (three male, four female). Mean age was 36 (range 33-41) for internal medicine attendings and 38 (range 36-40) for obstetrics-gynecology attendings. The mean number of months after the transition was 12.3 (range 9-23) and 13.3 (range 4-24), respectively, for internal medicine and obstetrics-gynecology attendings.

Results from attendings in internal medicine and obstetrics-gynecology showed great similarity to each other, and no discipline-specific factors were present. We will consecutively describe the three themes (disruptive novel elements; perception and coping; and personal development and outcome) and the three recurring categories (task, role, and context) that emerged from the analysis.

The first theme, disruptive novel elements, deals with identified differences between residency training and working as an attending in relation to the categories task, role, and context. These same categories recur in the second theme, which deals with the perceptions and coping

strategies of attendings in relation to the disruptive novel elements. The third theme addresses the attendings' personal development and outcomes in relation to both other themes.

The task category relates to different aspects of an attending's clinical and nonclinical work, while the role category covers the attending's position held within the organization and that position's impact on the attending's behavior. "Task" refers to what an attending is supposed to do. "Role" refers to the way he or she acts or is expected to act within the organization. Factors inherent to the settings in which the transition is enacted, the physician's workplace and personal life, are joined in the context category. After separate presentations of the themes, their interactions are described. Illustrative quotes derived from almost all interviews are presented within the text. Table 1 shows a schematic, static overview of the main topics within the themes and categories but not the interactions between them.

Table 1. Overview of Main Issues Within Themes and Categories Within the Emerged Conceptual Framework in the Transition From Resident to Attending as Identified During Semi Structured Interviews With 14 New Attendings, the Netherlands, 2009

Theme	Category		
	Task	Role	Context
Disruptive novel elements	<ul style="list-style-type: none"> • Non clinical tasks • Supervision (during shifts) 	<ul style="list-style-type: none"> • Leadership • Responsibility 	<ul style="list-style-type: none"> • Alterations in personal situation • Organizational structure • Culture
Perception and coping	<ul style="list-style-type: none"> • Medically well prepared • Non clinical tasks not well prepared • Pro active to reduce stress and feeling of incompetence 	<ul style="list-style-type: none"> • Leadership is stressful • Being proactive is needed 	<ul style="list-style-type: none"> • Possibility to question in safety → facilitates transition • Peer support perceived as helpful
Personal development and outcome	<ul style="list-style-type: none"> • Feeling of incompetence diminishes • Task mastery develops • Longitudinal process 	<ul style="list-style-type: none"> • To take position takes time • Expectations are discerned gradually 	<ul style="list-style-type: none"> • Personal situation settles through time • Structure and culture of organization becomes clear through time

Disruptive novel elements

Newly appointed attendings face multiple novel tasks. They experience a huge chasm between their work as residents and their new tasks, characterized by elements like final responsibility for patient care and supervision and management tasks, which are uncharted territory for them. Carrying the final medical responsibility is a major novel experience and is felt most acutely during on-call shifts:

... As a resident you know the attending is nearby if you need help with a breech delivery, so you think, "yeah a breech!" But now you realize that you're the one who has to take

over if needed! Normally, when you couldn't cope there was a safety net, but now I am that safety net!

Another new aspect of being on call during nights and weekends is supervising at a distance. Work as a resident is literally "hands-on," but when attending physicians are consulted they are unable to examine the patient. Additionally, attendings frequently supervise residents they do not know, and having no firsthand knowledge of a resident's expertise adds to the burden of supervision. Finally, attendings are responsible for but have no experience with tasks like management, financial matters, and writing business plans.

Participants identified a change in role and position in patient care and in the hospital organization. As residents, they had had one specific task assigned to them, such as running a ward or outpatient clinic, but as an attending the expectations were very different. Colleagues, residents, nurses, and patients expect attendings to perform multiple tasks simultaneously and to assign tasks to team members. Other new responsibilities relate to training residents and accountability in financial and management matters. This role shift towards headship demands leadership competencies, in which participants found themselves wanting. As one participant observed,

... at first you're planning to do everything yourself because then you know it will be done right ... and that's important because I'm responsible and that's the way I have always done things. But it's essential to entrust others with certain tasks and not do them all yourself.

Attendings have to get used to a new context, both at work and at home. The new hospital is unfamiliar and its organizational structure, culture, patient population, policies, and atmosphere are completely unknown. Participants talked about not knowing their colleagues, the nurses, and other staff, nor their tasks and positions in the hospital. Hospitals differed in the socialization programs they offered. Most participants received a warm welcome and during their first months had opportunities to confer on their tasks and any difficulties they encountered, but the majority of hospitals offered no structural socialization programs. Finally, attendings often had had to move to a different place, and geographical relocation in itself is a life-changing event.

Perception and coping

The participants perceived the period of change surrounding the transition from residency to attending physician from two perspectives. It signified their arrival at the final destination of residency training, but at the same time it marked the onset of a new period in their professional careers. Besides feelings of achievement and success, feelings of incompetence and fear of failure were evoked by their responsibility for unaccustomed tasks. When asked about their preparation

for the new position, participants generally said they felt well prepared and residency had provided them with sufficient medical knowledge and skills. Coming to grips with their new nonclinical tasks and roles, by contrast, is much more stressful and would have been easier if they had been introduced to these aspects of clinical practice during residency training. As one participant put it, "I found that step too big. One day you're taken by the hand as a resident and the next day as an attending you have to supervise a resident, so that step is far too big!"

Participants remarked that they felt they had to identify expectations from colleagues, nurses, and the board, while trying to establish their own routine and position at the same time. "There are expectations, you have obligations, and I believe it could be constantly on your mind as a new attending... do they believe that I've got what it takes?" wondered one participant.

New attendings use various strategies to cope with the new challenges. Most frequently mentioned was the need to be proactive right from the start of their new job so as to overcome their lack of experience by finding out how to perform tasks and identifying what was expected of them. For example, one participant realized "that I have no experience, so yeah...um... I am more controlling than others."

Perceptions regarding context factors were influenced by the support attendings received from colleagues and social contacts. Feeling supported and being able to consult with colleagues in a safe setting were of crucial importance during the first months. Some hospitals provided structured coaching groups, which offered much appreciated peer support. Commenting on the importance of this type of support, one participant noted a specific characteristic

space and safety with your colleagues, I would say. Knowing that you can always ask questions without getting nasty comments. Even if you don't do so, it is knowing that you could, if needed. That's the main thing!

Personal development and outcomes

The transition to attending is the start of a gradual process, which participants reported to last for extended period of time. For example, "I think it took approximately eighteen months for me to find my way... I mean within the organization, with colleagues and in just doing my job."

Initial challenges subside and new ones arise as time passes. Feelings of incompetence and fear of failure tend to ameliorate over time as a sense of mastery develops.

Changes in context also have a strong impact. It takes time for attendings to settle in, both at work and in their personal environment:

The first five months... you're experiencing multiple life events at the same time,... they are all positive, but it is very tiresome! Now after a year things are starting to take shape, our new house, family life etc. and that's an important foundation for my work.

Conceptual framework

We have described the three themes individually for comprehensiveness, but in reality they are in constant interaction. For instance, when a novel element is perceived and acted upon in a certain way, this affects personal development and outcome, which, in turn, alters the perception of other novel elements and thus influences further areas of personal development. This interrelatedness makes the transition a longitudinal process. Table 1 displays the main issues within the themes and categories but not the interactions and longitudinal nature of the transition. Newly appointed attendings enter a process in which disruptive novel elements relating to tasks, role, and context are perceived and acted on. As attendings progress through the transition, there is constant interaction between novelties, perceptions, and personal development. Both the ongoing interaction between the themes and the longitudinal character of the transition are pivotal to our preliminary conceptual framework of the transition.

Discussion

Our grounded theory study generated an initial conceptual framework of the key processes in the transition experienced by newly appointed attendings. The findings are supported by recently published medical education research and evidence from research in transition psychology and occupational and organizational socialization.^{2,25}

The model is supported by notions from transition psychology, which also distinguishes different phases in transitions and conceives transition as a longitudinal process.^{26,27} In transition psychology, transition is defined as a process of change in which individuals experience a personal awareness of discontinuity in their life space, forcing them to develop new behavioral responses to cope with a new situation.²⁶ Nicholson²⁸ described different phases in a transition model, which resemble the themes of our model: preparation, encounter, adjustment, and stabilization. The latter three phases seem to be congruent with our themes of disruptive novel elements, perception and coping, and personal development and outcome, whereas residency training could be conceived as the preparation phase. Furthermore, transition psychology contends that personal perceptions and context are important in transitions, which also confirms our findings.^{29,30} Finally, the transition psychology literature shows that the greater the discrepancies, such as those between tasks during residency and those of an attending, the more stressful the transition is likely to be.³¹

Our results are also concordant with theories from occupational and organizational socialization research on the process of learning behaviors and attitudes required for assuming a role within an organization.^{32,33} Morrison^{34,35} identifies newcomers as proactive when they are in search of developing themselves within four areas: task mastery, role clarification, acculturation, and social integration. These areas seem to resonate with our results. As our participants progressively clarified their roles over time, they developed task mastery, and it took time for them to adjust to the existing culture in the hospital.

Although transition psychology and organizational socialization are different research areas with different outcomes, Nicholson's²⁸ observation that the possible interdependence of these outcomes is not sufficiently recognized is consistent with our findings. Interdependence is a key element in our results and, thus, in our conceptual framework, in which continuous interaction between disruptive novel elements, perceptions, and personal development in relation to task, role, and context shapes an ever changing longitudinal process. Glaser²⁴ contends that use of unrelated literature findings keeps up the researchers' continual theoretical sensitivity to conceptualization and theorizing of data. This and the similarities between our results and notions from different research domains offer support for our initial conceptual framework as sound and grounded.

Possible implications

On the basis of our findings and the resulting framework, we propose three implications for practice from which suggestions for interventions can be derived. First, it appears to be important to minimize disruptive novel elements in the transition, a goal that can be accomplished for tasks and role by adapting residency training to the requirements of the practice of attendings. This could be achieved, for example, by including nonclinical skills, such as management and leadership training, in residency programs and by giving residents more responsibility for patient care, such as supervision. It should also be considered, however, that some discontinuity between training and practice is most likely inevitable and may even promote rapid personal development. Nevertheless, striking a good balance between discontinuity and a comfortable progression seems desirable to facilitate the transition.

A second intervention we propose is setting up socialization programs to familiarize new attendings with the organizational structure and culture of their new workplace and clarify their position within it. Such a program should incorporate context-specific and longitudinal aspects of the socialization process. Finally, peer groups in which new attendings can share experiences could foster effective coping skills and thus ease the transition.

Strengths, limitations, and further research

To our knowledge, this is the first research project to present a conceptual framework of the transition to attending that is firmly grounded in empirical data and seems to be in line with notions from related literatures. Furthermore, we used a transdisciplinary approach by investigating the transition in a broader setting than one specialty or location,¹⁸ which enhances the transferability of our results. Transferability (i.e., applying research findings from a particular study to a similar setting) is much debated within qualitative research,²⁰ but in accordance with our epistemological view transferability can be aspired to in qualitative research. Nevertheless, transferability within this study is possibly limited, since we conducted our study in just two different specialties in general teaching hospitals. Therefore the second research question, concerning the identification of factors applicable beyond boundaries set by specific disciplines, cannot be fully answered by this study. We present a first and sound conceptual framework for the transition to attending within internal medicine and obstetrics-gynecology, but the validity of this framework with respect to other disciplines needs further investigation. Transferability will be further investigated in a planned nationwide questionnaire study among new attendings from all clinical disciplines in different hospitals. Other future research projects will formulate and test new hypotheses to test the framework. Finally, the interventions we propose also require further investigation and development.

References

1. Beckett M, Hulbert D, Brown R. The new consultant survey 2005. *Emerg Med J*. 2006;23:461-3.
2. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)*. 2009;70:410-4.
3. Naeem A, Rutherford J, Kenn C. From specialist registrar to consultant: permission to land? *Psychiatr Bull R Coll Psychiatr*. 2005;29:348-51.
4. McKinstry B, Macnicol M, Elliot K, Macpherson S. The transition from learner to provider/teacher: the learning needs of new orthopaedic consultants. *BMC Med Educ*. 2005;5:17.
5. Wilkie G, Raffaelli D. In the deep and: making the transition from SpR to consultant. *Adv Psychiatr Treat*. 2005;11:107-14.
6. Gibson DR, Campbell RM. Promoting effective teaching and learning: hospital consultants identify their needs. *Med Educ*. 2000;34:126-30.
7. Horsley S, Roberts E, Barwick D, Barrow S, Allen D. Recent trends, future needs: management training for consultants. *J Manag Med*. 1996;10:47-53.
8. Cohen-Schotanus J, Schonrock-Adema J, Bouwkamp-Timmer T, van Scheltinga GR, Kuks JB. One-year transitional programme increases knowledge to level sufficient for entry into the fourth year of the medical curriculum. *Med Teach*. 2008;30:62-6.
9. van Hell EA, Kuks JB, Schonrock-Adema J, van Lohuizen MT, Cohen-Schotanus J. Transition to clinical training: influence of pre-clinical knowledge and skills, and consequences for clinical performance. *Med Educ*. 2008;42:830-37.
10. Prince KJ, Van De WM, Scherpier AJ, Can D, van der Vleuten CPM, Boshuizen HP. A Qualitative Analysis of the Transition from Theory to Practice in Undergraduate Training in a PBL-Medical School. *Adv Health Sci Educ Theory Pract*. 2000;5:105-16.
11. Benstead K. What is valuable for specialist registrars to learn in order to become good consultant clinical oncologists? *Clin Oncol (R Coll Radiol)*. 2006;18:549-54.
12. Haddad P, Creed F. Skills training for senior registrars. Results of a survey of recently appointed consultants. *Psychiatr Bull R Coll Psychiatr*. 1996;20:391-394.
13. Kite S, Salt S. Transition from SpR to consultant: a survey of training needs in palliative medicine. *Palliat Med*. 2006;20:53.
14. Lenton SW, Dison PJ, Haines LC. A BPA survey of recently appointed consultants. *Arch Dis Child*. 1994;71:381-85.
15. Loane R, Barker A. Newly appointed consultants in old age psychiatry and the adequacy of higher training. *Psychiatr Bull R Coll Psychiatr*. 1996;20:388-90.
16. MacDonald J, Cole J. Trainee to trained: helping senior psychiatric trainees make the transition to consultant. *Med Educ*. 2004;38:340-8.
17. Sandler M. Training experience and views of recently appointed consultants in geriatric medicine. *J R Coll Physicians Lond*. 1992;26:44-6.
18. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
19. Glaser BG, Strauss AL. *The Discovery of Grounded Theory*. Chicago, Ill: Aldine; 1967.
20. Pope C, Ziebland S, Mays N. Qualitative research in health care. Analysing qualitative data. *BMJ*. 2000;320:114-6.
21. Mays N, Pope C. Qualitative research in health care. Assessing quality in qualitative research. *BMJ*. 2000;320:50-2.
22. Kennedy TJ, Lingard LA. Making sense of grounded theory in medical education. *Med Educ*. 2006;40:101-8.
23. Strauss AL, Corbin J. *Basics of qualitative research*. 4th ed. Newbury Park, Calif: Sage Publications; 1991.
24. Glaser BG. *Emergence vs Forcing: Basics of grounded theory analysis*. Mill Valley, Calif: Sociology Press; 1992.
25. Morrow G, Illing J, Burford B, Kergon C. Are specialist registrars fully prepared for the role of consultant? *Clin Teach*. 2009;6:87-90.

26. Adams J, Hayes J, Hopson B. Transition, understanding & managing personal change. London, UK: Martin Robertson & Company; 1976.
27. Ashford SJ, Taylor MS. Adaptation to work transitions: an integrative approach. In: Ferris GR, Rowland KM, eds. Research in Personnel and Human Resource Management. Vol 8.Greenwich, Conn: JAI Press: 1990:1-41.
28. Nicholson N. a theory of work role transitions. Adm Sci Q. 1984;29:172-91.
29. Schlossberg NK. A Model for Analyzing Human Adaptation to Transition. Couns Psychol. 1981;9:2-18.
30. George LK. sociological perspectives on life transitions. Annu Rev Sociol. 1993;19:353-73.
31. Brett JM. job transitions and personal and role development. In: Ferris GR, Rowland KM, eds. Research in Personnel and Human Resource Management. Vol 8.Greenwich, Conn: JAI Press: 1984:155-85.
32. Fisher CD. organizational socialization: an integrative review. In: Ferris GR, Rowland KM, eds. Research in Personnel and Human Resource Management. Vol 8.Greenwich, Conn: JAI Press: 1986:101-45.
33. Maanen van J, Schein E.H. Toward a theory of organizational socialization. Res Organ Behav. 1979;1:209-64.
34. Morrison EW. Longitudinal study of the effects of information seeking on newcomer socialization. J Appl Psychol. 1993;78:173-83.
35. Morrison EW. Newcomers' relationships: the role of social network ties during socialization. Acad Manage J. 2002;45:1149-60.

**The transition to hospital
consultant and the influence of
preparedness, social support,
and perception; a structural
equation modelling approach**

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Abstract

Background

Insight into the transition from specialist registrar (SpR) to hospital consultant is needed to better align specialty training with starting as a consultant and to facilitate this transition.

Aims

This study investigates whether preparedness regarding medical and generic competencies, perceived intensity, and social support are associated with burnout among new consultants.

Method

A population-based study among all 2643 new consultants in the Netherlands (all specialties) was conducted in June 2010. A questionnaire covering preparedness for practice, intensity of the transition, social support, and burnout was used. Structural Equation Modelling was used for statistical analysis.

Results

Data from a third of the population was available (32% $n = 840$) (43% male / 57% female). Preparation in generic competencies received lower ratings than in medical competencies. Ten percent met the criteria for burnout and 18% scored high on the emotional exhaustion subscale. Perceived lack of preparation in generic competencies correlated with burnout ($r = 0.15$, $p < 0.001$). No such relation was found for medical competencies. Furthermore, social support protected against burnout.

Conclusions

These findings illustrate the relevance of generic competencies for new hospital consultants. Furthermore, social support facilitates this intense and stressful stage within the medical career.

Introduction

Transitioning from specialty training to a position as hospital consultant marks a successful achievement, but at the same time is fraught with stress and negative emotions.¹ New consultants face novel responsibilities both in clinical and non-clinical tasks, such as management, financial issues, and supervision.^{2,3} Moreover, for most new consultants this role change takes place within a new hospital among new colleagues, and is generally accompanied by additional stressors inherent to geographical relocation and settling in a new social environment.⁴ Research on transitions within the medical education continuum shows that these transitions are associated with raised stress levels, negative emotions, and burnout.^{2,5,6} This deserves serious consideration within medical education and practice. For, besides its effects on individual physicians, burnout is also associated with diminished quality of patient care.^{7,8}

According to Brown *et al.*², a better alignment between specialty training and practice as a hospital consultant could result in a less disruptive and less stressful transition. In an attempt to achieve this, specialty training programs have paid increased attention to generic competencies in their curricula. There is evidence within health sciences that generic competencies, such as communication, leadership, and teamwork, are important for success on the job market^{9,10}, but there is ongoing debate on the role and position of these competencies within specialist registrar training.^{11,12} Furthermore, evidence is lacking on the association between new consultants' perceived preparedness and the intensity of transitioning into a post as new consultant.

Most transition research within medical education concerns the transition from medical student to junior doctor, or junior doctor to specialist registrar. Consequently, a paucity of research into the transition to hospital consultant exists.³ More insight into this transition, based on empirical evidence, is needed to inform measures aimed at improvement of SpRs' preparation for their future professional role and to offer them support during the transition. We developed and tested a model based on previous research on the transition to consultant, medical education research, burnout literature, and two research fields within social psychology. This model links preparation in generic and medical competencies, perception, and social support to burnout in the transition from specialty training to new hospital consultant. The hypothesized associations between these variables are described in the model below.

Hypothetical model on the transition to new hospital consultant

As mentioned above, a better alignment between specialty training and working as a consultant could result in a smoother transition.¹³⁻¹⁵ This is one of the arguments for an increased focus on generic competencies in postgraduate medical curricula. However, there is no evidence to support the premise that a lack of (perceived) preparation in medical or generic competencies

is associated with the intensity of the transition or even with burnout levels among new hospital consultants.

Burnout is described by Maslach as a prolonged response to emotional and interpersonal stressors on the job, defined by three dimensions: emotional exhaustion, depersonalization, and a feeling of reduced personal accomplishment.¹⁶ Burnout is described as a dynamic process in which the three domains develop gradually and sequentially.¹⁷ Emotional exhaustion can develop in response to high job demands, and can lead to depersonalization. Depersonalization is a form of dysfunctional coping by creating a distance between oneself and the people one works with, for instance patients or colleagues. Eventually this can lead to feelings of reduced personal accomplishment. The emotional exhaustion subscale of burnout shows similarity to the results of earlier research on the perception of the transition to hospital consultant⁴ and led to the use of burnout as a dependant variable in the transition to hospital consultant. Therefore, the first hypothesized associations are

Hypothesized association 1: A higher level of preparedness within medical competencies is negatively associated with burnout among new hospital consultants.

Hypothesized association 2: A higher level of preparedness within generic competencies is negatively associated with burnout among new hospital consultants.

Transition psychology is the first of two research fields within social psychology that has studied transitions in domains outside of medicine. Within transition psychology 'change' is discerned from 'transition'. A bigger 'change', i.e. the objective differences between the pre- and post transition situation, often results in a more intense and stressful transition. 'Transition' in its turn denotes the psychological processes within the individual.^{4,18} Transition psychology thus recognizes that the same amount of change can be perceived differently by individuals, due to, for instance, one's ability to cope with potential stressors.¹⁹ Therefore it can be argued that the transition to consultant might be perceived as intense due to big changes in task, role, and context while others perceive it as intense even in the absence of big changes. In conclusion, we hypothesize that the personal perception of the transition influences the outcome of this process. This led us to the third hypothesised association

Hypothesized association 3: A more intensely perceived transition is positively associated with burnout among new hospital consultants.

The second field within social psychology that influenced the development of the hypothetical model is that of organizational socialization research, which studies learning behaviours and attitudes needed by individuals for assuming a new role or position in a (new) organization.^{20,21} Research within organizational socialization shows that support received from colleagues, the organization, and friend and family is pivotal in helping individuals within transition.^{22,23} Furthermore, within the burnout literature, support is also acknowledged as a protector against burnout.²⁴ This leads to our fourth hypothesized association

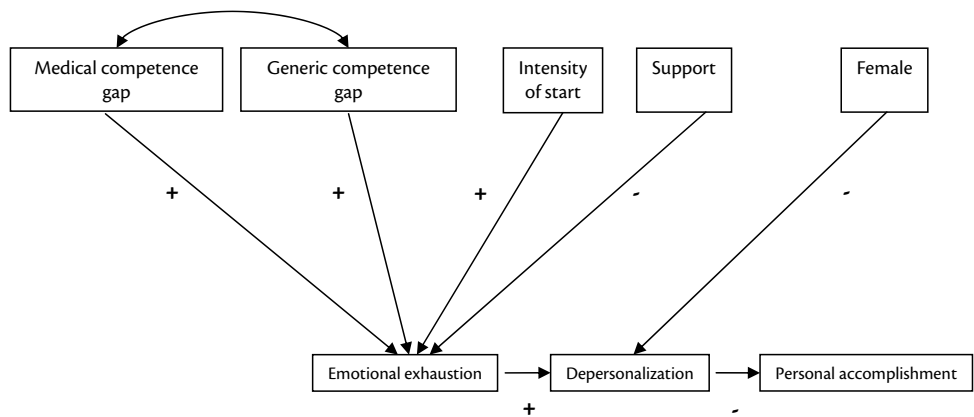
Hypothesized association 4: *Perceived support from colleagues and the personal setting is negatively associated with burnout among new hospital consultants.*

Our last hypothesized association builds on burnout research, which shows that females tend to depersonalize less than men.²⁵ Therefore, the fifth and final hypothesized association is

Hypothesized association 5: *Female gender is negatively associated with scores on the depersonalization subscale.*

All hypothesized associations are depicted in Figure 1.

Figure 1. Measured variables and their hypothesized associations among new hospital consultants in the Netherlands.



Each hypothesized association is accompanied by a plus or a minus indicating the association was hypothesized to be either positive or negative.

Method

Throughout this research project we were guided in our methodology and method by a post positivistic epistemology. We believe that objective knowledge is not fully accessible but that the 'probable truth' on this transition can be established through systematic collection and analysis of empirical data and the falsification of hypotheses.²⁶

Ethics Statement

Ethical approval was received from the Medical Ethical Review Committee of the St Lucas Andreas Hospital, Amsterdam, the Netherlands. The cover letter, which accompanied the questionnaire, stated that returning the filled out questionnaire would count as informed consent for participation in this study. This procedure was also approved by the Medical Ethical Review Committee of the St Lucas Andreas Hospital Amsterdam, the Netherlands.

Participants and procedure

Consultants with a maximum of three years of experience as a consultant were considered as 'new consultants'. Through the Dutch Medical Registration Committee we retrieved the addresses of all 2643 hospital consultants registered in the Netherlands who had completed specialty training in one of the 27 medical specialties in 2007, 2008, and 2009. In June 2010 all new consultants received a questionnaire covering different aspects of the transition from SpR to hospital consultant and their level of preparedness for their new position. The questionnaire could be completed on paper or online. All new consultants received one reminder within three weeks. Participation was voluntary and anonymous.

All specialty training programs in the Netherlands are currently undergoing a shift from a discipline-oriented curriculum towards a competency-based curriculum. All study participants had completed their training before this change in the programs.

Measures

We used burnout scores as dependent variables and measured these using the validated Dutch version of the Maslach Burnout Inventory (MBI) Human Services Survey.²⁷ The MBI consists of twenty items on three subscales: emotional exhaustion, depersonalization, and reduced sense of personal accomplishment. Burnout is defined as scores above the cut-off values for high emotional exhaustion and depersonalization, or high scores on emotional exhaustion and low scores on personal accomplishment.

All predictor variables, except gender, were measured on a five-point Likert scale. Participants rated their competence level achieved at the end of specialty training for each of 19 medical and generic competencies (A) and for the same competencies they rated the level of competence required for their current position as a hospital consultant (B). Subtracting A from B yielded the

'competency gap' score and high competency gap scores were considered indicative of low levels of preparedness, or in transition psychology terms; a large 'change'. The medical competencies included: mastery of clinical knowledge, skills, and the ability to carry responsibility for patient care. Generic competencies included, for instance: supervision during on call shifts, management skills, handling financial issues within healthcare, and collaboration (Table 1). The list of competencies was based on the competency framework adopted by the Dutch Central College of Medical Specialists, which is based on the CanMEDS competency framework. In order to transform and expand this list to meaningful items for our questionnaire we additionally looked at medical education literature²⁸⁻³⁰, literature on the role of specific and generic competencies in the labour market³¹, and previous research on the transition to hospital consultant.^{1,4} In addition, one questionnaire item measured the perceived intensity of the transition, i.e. the 'transition' factor in transition psychology. Finally two questionnaire items asked about social support received from colleagues and significant others in the transition to consultant.

Table 1. Competencies rated by new hospital consultants in the Netherlands.

Medical competencies
1. mastery of clinical knowledge
2. mastery of clinical skills
3. capability of carrying final responsibility for patient care
Generic competencies
4. capability of practising evidence based medicine
5. skill at keeping knowledge and skills 'up to date' through, for instance, continuous professional development
6. skill at communicating with patients
7. skill at giving feedback
8. skill at receiving feedback
9. skill at asking for feedback
10. capability of working in a team with colleagues and other medical specialists
11. capability of working in a team with nurses and others
12. skill at training SpRs and medical students
13. capability of supervising SpRs on the ward
14. capability of supervising SpRs from a distance during on call shifts
15. skill at leadership with regard to individuals and teams
16. skill at management
17. skill at time management
18. capability of handling financial aspect of healthcare
19. capability of working effectively within the organizational structure of the hospital and healthcare system

The participants rated the medical and generic competencies both for the level achieved at the end of specialty training and the level required for their position as a hospital consultant.

Analysis

After replacing missing values using two-way imputation³² we used descriptive statistics and Pearson's correlation coefficients to screen the data and examine relationships between sets of variables and possible differences between specialty groups, i.e. medical, surgical or supportive specialties, and psychiatry. Because of the complexity of the multiple hypothesized associations we used Structural Equation Modelling (SEM) for the final analysis.³³ SEM is a statistical tool that builds on different techniques such as regression analysis, correlation, and analysis of variance. It enables testing for the significance and fit of the hypothesized associations to the observed data. Regression weights were deemed significant at an alpha level of <0.05 . We used the root mean square error of approximation (RMSEA) and the comparative fit index (CFI), which are known to be least affected by larger sample sizes. The RMSEA should be less than 0.06 with p-value of closest fit (PCLOSE) > 0.05 indicating that the corresponding p-value of the RMSEA is ≤ 0.05 . The CFI compares the covariance matrix of the hypothetical model to the observed covariance matrix and should be >0.9 . We used Hoelter's critical N to check the power of the sample size and had to be >200 .^{33,34}

Results

The study population consisted of 2643 new consultants and we were able to collect data from 840 new consultants, resulting in a sample size of 32%. We rejected data from 48 participants due to gross incompleteness, for instance not filling out an entire subscale. The demographics, descriptive details, and outcomes for different measures are presented in Table 2. The results show no significant differences between specialty groups within demographic characteristics, perceived preparedness, and burnout. Furthermore, the demographic details such as gender, age, and distribution within specialty groups were similar to the total study population, making the possibility of a non-representative sample unlikely.

The new consultants considered themselves better prepared for medical competencies than for generic competencies, with competency gap scores of 0.42 (SD = 0.55) and 0.73 (SD = 0.57), respectively. Supervision during on call shifts, management skills, and handling financial aspects of healthcare (generic competencies) showed the greatest competency gap scores (1.17 (SD 1.27), 1.61 (SD = 1.10) and 1.90 (SD = 1.16), respectively). By contrast, the competency gap scores on mastery of clinical knowledge and skills (medical competencies) were 0.32 (SD = 0.66) and 0.33 (SD = 0.69), respectively. The criteria for burnout were met by 9.5 % of the new consultants. Furthermore, 17% and 18% of the new consultants scored above the cut-off value for high emotional exhaustion and depersonalization, respectively.

Table 2. Demographics and descriptives of 792 new hospital consultants in the Netherlands.

Demographics	n	%	mean (SD)
Gender			
Men	343	43	
Women	449	57	
Age (years)			
Men			36.6 (3.9)
Women			36.0 (3.8)
No. of months as a hospital consultant			
0-6	104	13	
6-12	146	18	
12-24	277	35	
> 24	265	34	
Specialty group			
Medical specialties	336	42	
Surgical specialties	187	24	
Supportive specialties	160	20	
Psychiatry	109	14	
Descriptives of measurements	%	Mean (SD)	Range
Percentage that meets criteria of burnout	9.5		
High scores on emotional exhaustion*	17.2		
High scores on depersonalization**	18.7		
Low scores on personal accomplishment***	9.5		
'Competency gap' total score		0.58 (0.48)	-1.84 to 2.48
Medical competencies		0.42 (0.57)	-2.00 to 3.33
Generic competencies		0.73 (0.55)	-1.69 to 2.63
Perceived intensity of starting as a hospital consultant		3.98 (0.85)	1-5
Perceived support during the transition		4.09 (0.65)	1-5

* Cut-off value for high emotional exhaustion was ≥ 19.92 (total score on 8 items)

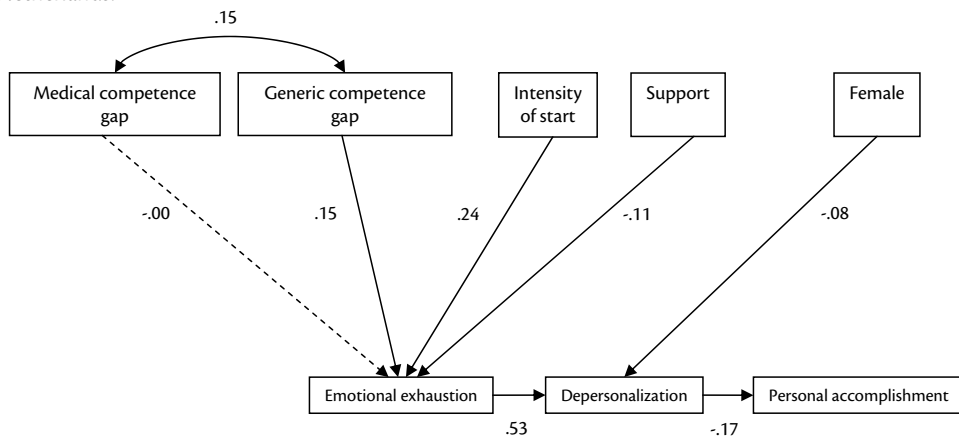
** Cut-off values for high depersonalization were for men ≥ 8.95 and women ≥ 7.95 (total score on 5 items)

*** Cut-off values for low sense of personal accomplishment was ≤ 25.97 (total score on 7 items)

The analysis and testing of the different hypothesized associations (Figure 1) with SEM resulted in the model presented in Figure 2, which shows all correlations with standardized regression weights. All hypothesized associations were confirmed, except for the hypothesized association between perceived level of competence within medical competencies and burnout. Model fit parameters are: RMSEA = 0.052 with PCLOSE = 0.37 and CFI = 0.92 and Hoelter's N = 469. This indicates a good fit of our model to the observed data. A CFI of 0.92 indicates that 92% of the covariance in the data is accounted for by the model. We found a significant correlation ($r = 0.15$, $p < 0.01$) between a higher competency gap on generic competencies and emotional exhaustion (hypothesized association 2), but no correlation was found for medical competencies and emotional exhaustion (hypothesized association 1). Perceived intensity of the transition also correlated significantly with emotional exhaustion ($r = 0.24$, $p < 0.01$) (hypothesized association

3). Perceived support and female gender were negatively correlated with emotional exhaustion and depersonalization. Social support was negatively correlated with emotional exhaustion ($r = -0.11$, $p < 0.01$) (hypothesized association 4) and female gender correlated negatively with depersonalization ($r = -0.08$, $p < 0.01$) (hypothesized association 5). The correlations explain 10%, 29%, and 3% of the variance in emotional exhaustion, depersonalization, and personal accomplishment, respectively.

Figure 2. Measured variables and their correlations among new hospital consultants ($n=792$) in the Netherlands.



Solid lines are the confirmed and significant correlations. Reported path values are standardized regression weights, which are significant at the $p = 0.001$ level. The dotted line indicates a hypothesized association that was not confirmed.

Discussion

We investigated whether the following predictor variables are associated with the occurrence of burnout in the transition from specialist registrar to hospital consultant; preparedness achieved through specialty training regarding medical and generic competencies, perceived intensity of the transition, received social support, and gender.

Our respondents perceived a greater gap between achieved and required competence for generic than for medical competencies. Moreover, unpreparedness in generic competencies was positively associated with burnout, whereas no relation was found for unpreparedness in the medical competencies. Furthermore, perceived social support was found to protect against burnout whereas perceived intensity correlated positively with burnout scores among new consultants. Of the participants, almost 10% met the criteria for burnout and 18% had high scores on at least one domain of burnout. This suggests the seriousness of the problem of burnout among new hospital

consultants especially in view of the relation between physicians' burnout and diminished quality of delivered healthcare.^{7,8,35}

Comparison to existing literature

Few studies have examined the transition from SpR to hospital consultant or reported deficiencies in generic competencies.^{3,13} To our knowledge this is the first study to investigate a theory-based model of different aspects of this transition. Our results are in line with evidence from both medical education research and adjacent research fields.

Firstly, the importance of generic competencies is supported by qualitative studies among new consultants^{2,4} and research on success in the job market.⁹ A number of papers report on new consultants feeling unprepared within generic aspects of their work and anecdotal evidence exists on the importance of these generic competencies.^{13,36-38} However, to our knowledge this is the first study to provide evidence of an association between the quality of specialty training (perceived level of preparedness) and starting as a hospital consultant, and the important role of generic competencies in this transition. Secondly, the absence of an association between medical competencies and burnout is in line with recent research among SpRs.³⁹ They too, found no association between levels of medical competencies and well being or burnout. Furthermore, the negative correlations between female gender and depersonalization and between social support and emotional exhaustion are also in line with the literature.^{24,25} The reported correlations between the different burnout subscales (Figure 2) are similar to the correlations provided by the burnout inventory manual, which further supports our findings.^{16,27} Finally, the results reflect the dynamic nature of burnout¹⁷, with 17% of the new consultants scoring above the cut-off for emotional exhaustion, but only 10% showing low scores on personal accomplishment. This may be explained by a gradual progression of burnout symptoms from emotional exhaustion to reduced sense of personal accomplishment, which may take more than the average of 15 months that the respondents in this study had worked as hospital consultant.²⁴ An alternative explanation may be that the majority of the hospital consultants used coping styles that prevented the progression of burnout symptoms to a reduced sense of personal accomplishment.⁴⁰

Strengths and limitations

The explicit theoretical basis contributes to the strength of this study as well as the large study population consisting of all new hospital consultants in the Netherlands within a triennial cohort. Our goal was to investigate the hypothesized associations as described in the model above and not to assess the prevalence of burnout or levels of preparation among new hospital consultant. One could argue that our sample size of 32% risks non-response bias. Several arguments contradict this point of view. Firstly, since we conducted a population study the possibility of introducing a selection bias in the selection of participants was already prevented. Furthermore, recent evidence

on non-response rates and non-response bias shows that the assumed association between these two phenomena is often absent.⁴¹ Finally, the fact that the demographic characteristics of our participants show great similarity to that of the total population indicates that our data are probably representative for the entire study population.⁴¹ The 792 valid responses were therefore sufficient to draw conclusions about the associations between our variables, as is also indicated by the good model fit parameters.

This study used self-report measures only, which bears the risk of reporting bias. We did not set out to measure objective levels of competence, but rather investigated whether perceived preparation through specialty training is associated to the experienced intensity of transitioning to hospital consultant. Finally, the limited percentage (10%) of explained variance on the emotional exhaustion burnout subscale is indicative of the multifactor construct of burnout.⁴² It should thus be noted that lack of preparedness through training is only one among many predictors of burnout.

Implications and future research

This study shows that deficiencies in generic competencies are positively correlated to the occurrence of burnout among new hospital consultants. This offers evidence that can contribute to the debate on the importance of generic competencies in medical education. Clinical supervisors, curriculum architects, SpRs, and consultants should be aware of the stressors that accompany the transition to hospital consultants. All those involved in specialty training should aim at improved alignment of training and the demands made on consultants. It also seems important to facilitate the transition by arranging for support of new consultants. Support programmes may well range from informal support of colleagues to structured support measures like mentoring or coaching. The importance of social support in preventing burnout was evident in previous research too.^{4,24} We therefore recommend colleagues of new consultants to be aware of their role in facilitating the consultant in settling into their new posts.

Since all participants completed their specialty training prior to the introduction of competency based curricula in postgraduate education, in five years time new consultants may feel better prepared for generic competencies. Future studies should examine this, as well as any effect on burnout rates. As mentioned above, burnout is a however a multifactor construct and lack of generic competencies is only one of its predictors. Future research on burnout in hospital consultants should focus on different predictors in order to gain more insight into this important issue. Finally, future research should also address possible interventions aimed at facilitating the transition, such as training in generic competencies, structured peer support groups, or mentoring or coaching for new hospital consultants.

Conclusions

The transition from specialty training to new hospital consultant is an intense and stressful phase within the medical career, as illustrated by the high burnout scores among new hospital consultants. The results show that new consultants felt inadequately prepared for different generic competencies needed for their new post. A lack of generic competence is related to higher burnout scores among new consultants. Furthermore, this study illustrates the protective effect of perceived social support within the transition to hospital consultant. This study brings evidence to the widespread debate on the importance of generic competencies in medical education. Furthermore the results provide insights that can be used to inform measures aimed at facilitation of the transition by either better preparing future consultants or delivering better support for the new hospital consultant in transition.

References

1. Teunissen PW, Westerman M. Opportunity or threat; ambiguity in the consequences of transitions in medical education. *Med Educ*. 2011;45:51-9.
2. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)*. 2009;70:410-4.
3. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
4. Westerman M, Teunissen PW, Vleuten van der CPM et al. Understanding the transition from resident to attending physician: a transdisciplinary, qualitative study. *Acad Med*. 2010;85:1914-19.
5. Helmers KF, Danoff D, Steinert Y, Leyton M, Young SN. Stress and depressed mood in medical students, law students, and graduate students at McGill University. *Acad Med*. 1997;72:708-14.
6. Bogg J, Gibbs T, Bundred P. Training, job demands and mental health of pre-registration house officers. *Med Educ*. 2001;35:590-5.
7. Baruch-Feldman C, Brondolo E, Ben-Dayana D, Schwartz J. Sources of social support and burnout, job satisfaction, and productivity. *J Occup Health Psychol*. 2002;7:84-93.
8. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med*. 2002;136:358-67.
9. Semeijn JH, Velden van der R, Heijke H, Vleuten van der C, Boshuizen HPA. Competence indicators in academic education and early labour market success of graduates in health sciences. *Journal of Education and Work*. 2006;19:383-413.
10. Meng C. *Discipline-Specific or Academic? Acquisition, Role and Value of Higher Education Competencies*. Maastricht, The Netherlands: ROA, 2005.
11. Swing SR. The ACGME outcome project: retrospective and prospective. *Med Teach*. 2007;29:648-54.
12. Frank JR, Danoff D. The CanMEDS initiative: implementing an outcomes-based framework of physician competencies. *Med Teach*. 2007;29:642-7.
13. Beckett M, Hulbert D, Brown R. The new consultant survey 2005. *Emerg Med J*. 2006;23:461-3.
14. Benstead K. What is valuable for specialist registrars to learn in order to become good consultant clinical oncologists? *Clin Oncol (R Coll Radiol)*. 2006;18:549-54.
15. Haddad P, Creed F. Skills training for senior registrars. Results of a survey of recently appointed consultants. *Psychiatric Bulletin*. 1996;20:391-4.
16. Maslach C, Jackson S.E., Leiter M.P. *Maslach Burnout Inventory Manual*. 3 ed. Palo Alto, California: Consulting Psychologists Press Inc. 1996.
17. Leiter MP. Burnout as a Developmental Process: Consideration of Models. In: Schaufeli WB, Maslach C, Marek T, eds. *Professional Burnout: recent developments in theory and research*. Washington D.C.: Taylor & Francis; 1993:237-50.
18. Adams J, Hayes J, Hopson B. *Transition, understanding & managing personal change*. London: Martin Robertson & Company; 1976.
19. Nicholson N. a theory of work role transitions. *Adm sci q*. 1984;29:172-91.
20. Fisher CD. organizational socialization: an integrative review. *Res pers hum resour manage*. 1986;4:101-45.
21. Morrison EW. Longitudinal study of the effects of information seeking on newcomer socialization. *J Appl Psychol*. 1993;78:173-83.
22. Morrison EW. Newcomers' relationships: the role of social network ties during socialization. *Acad Manage J*. 2002;45:1149-60.
23. Chao GT, O'Leary-Kelly AM, Wolf S, Klein HJ, Gardner PD. Organizational Socialization: Its content and consequences. *J Appl Psychol*. 1994;79:730-43.
24. Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of job burnout. *J Appl Psychol*. 1996;81:123-33.
25. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001;52:397-422.
26. Bunniss S, Kelly DR. Research paradigms in medical education research. *Med Educ*. 2010;44:358-66.

27. Schaufeli W, Dierendonck van D. *UBOS Utrechtse Burnout Schaal handleiding*. Lisse, The Netherlands: Swets & Zeitlinger B.V; 2000.
28. Prince KJ, Boshuizen HP, van der Vleuten CPM, Scherpbier AJ. Students' opinions about their preparation for clinical practice. *Med Educ*. 2005;39:704-12.
29. Schmidt HG, Vermeulen L, van der Molen HT. Longterm effects of problem-based learning: a comparison of competencies acquired by graduates of a problem-based and a conventional medical school. *Med Educ*. 2006;40:562-7.
30. Jaarsma DA, Dolmans DH, Scherpbier AJ, van Beukelen P. Preparation for practice by veterinary school: a comparison of the perceptions of alumni from a traditional and an innovative veterinary curriculum. *J Vet Med Educ*. 2008;35:431-8.
31. Semeijn JH. *Academic Competencies and Labour Market Entry studies among Dutch graduates*. Maastricht, the Netherlands: ROA, 2005.
32. Sijtsma K, Van der Ark LA. Investigation and treatment of missing item scores in test and questionnaire data. *Multivariate Behav Res*. 2003;38:505-28.
33. Violato C, Hecker KG. How to use structural equation modeling in medical education research: a brief guide. *Teach Learn Med*. 2007;19:362-71.
34. Garson, D. G. Structural Equation Modelling. <http://faculty.chass.ncsu.edu/garson/PA765/structur.htm>. 18-11-2009. Accessed on 21-10-2010.
35. West CP, Huschka MM, Novotny PJ et al. Association of perceived medical errors with resident distress and empathy: a prospective longitudinal study. *JAMA*. 2006;296:1071-8.
36. Naeem A, Rutherford J, Kenn C. From specialist registrar to consultant: permission to land? *Psychiatric Bulletin*. 2005;29:348-51.
37. McKinstry B, Macnicol M, Elliot K, Macpherson S. The transition from learner to provider/teacher: the learning needs of new orthopaedic consultants. *BMC Med Educ*. 2005;5:17.
38. Morrow G, Illing J, Burford B, Kergon C. Are specialist registrars fully prepared for the role of consultant? *The clinical teacher*. 2009;6:87-90.
39. West CP, Shanafelt TD, Cook DA. Lack of association between resident doctors' well-being and medical knowledge. *Med Educ*. 2010;44:1224-31.
40. Prins JT, Hoekstra-Weebers JE, Gazendam-Donofrio SM et al. Burnout and engagement among resident doctors in the Netherlands: a national study. *Med Educ*. 2010;44:236-47.
41. Groves RM. Nonresponse Rates and Nonresponse Bias in Household Surveys. *Public Opinion Quarterly*. 2006;70:646-75.
42. Cordes CL, Dougherty TW. A review and an integration of research on job burnout. *Acad Manage Rev*. 1993;18:621-56.

**The transition to hospital
consultant; Denmark and
the Netherlands compared
on preparedness for practise,
perceived intensity, and
contextual factors**

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Abstract

Introduction

Danish and Dutch new consultants' perceptions regarding the transition to consultant were compared to gain insight into this period, particularly the influence of contextual factors concerning the organisation of specialty training and healthcare therein. Preparation for medical and generic competencies, perceived intensity, and burnout were compared. Additionally, effects of differences in working conditions and cultural dimensions were explored.

Methods

All consultants registered in the Netherlands in 2007-2009 ($n = 2643$) and Denmark in 2007-2010 ($n = 1336$) received in June 2010 and April 2011, respectively, a survey about their preparation for medical and generic competencies, perceived intensity, and burnout. Power analysis resulted in required sample sizes of 542. Descriptive statistics and independent t-tests were used for analysis.

Results

Data were available of 792 new consultants in the Netherlands and 677 Danish new consultants. Compared to their Dutch counterparts, Danish consultants perceived specialty training and the transition less intensely, reported higher levels of preparation for generic competencies and scored lower on burnout.

Conclusions

The importance of contextual aspects in the transition is underscored and shows that Denmark appears to better succeeds in aligning training with practice. Regulations regarding working hours and progressive independence of trainees appear to facilitate the transition.

Introduction

On starting work after completion of training, recently qualified specialists find themselves confronted with, if not overwhelmed by, a host of new challenges, such as final responsibility for patient care and novel non-clinical tasks relating to financial, leadership and management responsibilities. Many doctors find themselves struggling during this transitional stage¹⁻³, dealing with their new situation in a dynamic interplay between preparation through training, psychological characteristics - including coping strategies - and contextual factors,^{2,4,5} such as social support from colleagues and the culture and organisation of the new work environment.^{6,7} Results of research into effective alignment of training with the work of a hospital consultant⁸ can be translated into measures to alleviate the burden caused by this stressful period, such as curriculum change or organisational and contextual interventions.

The transition from trainee to consultant has been studied in various countries⁹⁻¹¹, but the research has been mostly descriptive and not explicitly aimed at clarifying the processes involved.¹² The transferability of most of these studies is likely limited as they were conducted in one medical specialty in one geographical region. Higgins *et al.*¹³ therefore advocated investigating the needs of new consultants in empirical studies transcending geographical and professional contexts and looking into contextual factors, such as working conditions, the design of specialty training programmes, the organisation of health care and cultural characteristics. We therefore investigated the transition from specialty trainee to consultant in two countries by surveying newly qualified consultants in all specialties in order to gain a deeper understanding of this important phase in the medical education continuum.

We focused on the Netherlands and Denmark because they are Western European countries with similar socioeconomic conditions.¹⁴ As the CanMEDS framework was recently incorporated into postgraduate training in both countries, we expected the relative similarity of training approaches^{15,16} to facilitate the identification of differences with a marked impact on the transition from trainee to consultant. To do justice to the multifaceted and dynamic interplay between individual, educational, and contextual factors in this transition, we explored aspects of each of these three areas to find answers to the following research questions:

1. Are newly qualified consultants in Denmark and the Netherlands similar or dissimilar in the way their training has equipped them with the medical and generic competencies required for work as a hospital consultant?
2. Are newly qualified consultants in Denmark and the Netherlands similar or dissimilar in their perceptions of the intensity of the transitional period when starting work as a hospital consultant?

We conducted two nationwide surveys among new consultants in all clinical specialties in Denmark and the Netherlands to identify areas in which supportive measures might be taken to facilitate the transition.

Methods

Educational setting

Undergraduate medical education lasts six years in both Denmark and the Netherlands. Immediately after graduation, Dutch junior doctors can apply for a place in a training programme in one of the specialties, varying in duration from three to six years. Programmes are run by the eight university medical centres and affiliated general teaching hospitals. On completion of training specialists usually find a position as a hospital consultant in a university medical centre or general hospital. In Denmark, specialty training varies from five to six years, depending on the specialty. The actual training programme is preceded by a mandatory internship in the specialty of the trainee's preference, recently shortened from eighteen to twelve months. Internships are offered by university and general teaching hospitals and it is acceptable for trainees to undertake several internships in different specialties before deciding in which specialty they will undertake the second part of training, comprising a programme of rotations offered by hospital trusts through regional postgraduate training secretariats. After completion of training, Danish doctors have to work as a hospital specialist for at least one year before they are entitled to apply for a consultant position.

Contextual and cultural setting

We expected the transition to be affected by interactions between preparation through training, psychological factors, contextual variables, and contextual and cultural characteristics of the two countries. Based on the literature on (coping with) transitions we focused on working time regulations, income, parental leave and child day-care facilities, additionally considering Hofstede's cultural dimensions^{17,18} as potential contributors to differences between the two study populations.

Working conditions

Whereas in Denmark trainees are allowed to work a maximum of 37 hours a week, in the Netherlands the limit is set at 48 hours for both trainees and consultants. Arrangements for parental leave differ as well. In Denmark mothers are entitled to eighteen weeks and fathers to two weeks paid leave, and parents can divide an additional 32 weeks between them, resulting in a total of 52 weeks. In the Netherlands mothers are entitled to sixteen weeks of maternity leave and fathers to a maximum of three days, resulting in a total of 16.5 weeks. This may explain the difference between the countries in the percentage of children under the age of one year attending day care facilities in Denmark (17%) and the Netherlands (65%).

Hospital consultants' salaries too differ, with almost all Danish consultants being employed by a hospital and earning an average annual income of 100,000 euros, whereas in the Netherlands new consultants earn around 150,000 euros with considerable differences depending on whether they are employed by a hospital or join a private partnership with earnings based on a fee-for-service system.

Cultural dimensions

The Dutch sociologist Hofstede has developed cultural dimensions that are widely used in international comparisons of organisational settings and values, including those in medical education. The dimensions are rated on a scale from 0-100 and research has established scores for many countries, including Denmark and the Netherlands. In this study we considered three of the five dimensions¹⁹: the power distance index (PDI), individuality index (II) and uncertainty avoidance index (UAI). The PDI indicates to which extent members of organisations expect and accept a hierarchical power structure. In the Netherlands, the PDI is moderate at 38 and in Denmark it is low at 18, indicating that Dutch culture is more hierarchical. A high score on the II indicates that individuals are expected to look after themselves rather than depend on the collective (a low score on the individuality index). II scores are quite similar in the Netherlands and Denmark: 80 and 74, respectively, indicating that both cultures have a predominantly individualistic orientation. The UAI is low in Denmark (23) and moderate in the Netherlands (53). It is indicative of tolerance for uncertainty and ambiguity, as reflected in the extent to which members of an organisation are uncomfortable with unstructured and novel situations. Countries with a high UAI generally have high levels of legislation and regulation allowing for cautious planning to avoid uncertainty.

Participants and procedure

The Netherlands

Through the Dutch Medical Registration Committee we retrieved the addresses of all 2643 hospital consultants registered in the Netherlands who had completed specialty training in one of the 27 medical specialties in 2007, 2008 or 2009. In June 2010 we sent all new consultants a Dutch language questionnaire covering different aspects of the transition from trainee to consultant, followed by a reminder three weeks later. The questionnaire could be completed on line or on paper (and returned in a prepaid envelope), and participation was voluntary and anonymous. Nearly all study participants in both countries had completed their specialty training before the recent implementation of CanMEDS-based competency-oriented postgraduate curricula.

Denmark

From the database of the National Board of Health in Denmark, we retrieved the names of all 1618 registered new hospital consultants who had completed specialty training in one of the 37 medical specialties in the period 2007-2010. Since general medicine is not a recognised specialty

in the Netherlands, it was not included in the study. Addresses were retrieved for 1336 new Danish consultants, to whom we sent an English translation of the Dutch questionnaire in April 2011. The original Dutch questionnaire was translated into English by the main researcher with help from a native speaker. Translation back into Dutch by a professional translator resulted in a version that was similar to the original Dutch one.

Questionnaire

We used a three-part questionnaire covering different aspects of the perceived transition from specialty training to work as a hospital consultant. The first part contained items on demographics such as age, gender, registered specialty, and year of completion of specialty training. The second part, addressed consultants' perceived preparation by training (first research question) by asking them to rate on a five-point Likert scale (very poorly-excellent) for each of nineteen competencies: (A) their perceived level of competence at the end of specialty training and (B) the level of competence required for their current position as a hospital consultant. Subtracting A from B yielded a score that was interpreted as the 'competency gap', with high scores being assumed to be indicative of low levels of preparation. The nineteen competencies ranged from medical competencies, i.e. clinical knowledge and skills and the ability to carry responsibility for patient care, to generic competencies, such as supervision of junior doctors during on call shifts, management skills, handling financial issues within healthcare, and collaboration. The list of competencies was based on the CanMEDS framework, which guided the design of the new specialty training programmes that were recently introduced in both Denmark and the Netherlands. The nineteen competencies were based also on the literature on transitions in the medical education continuum²⁰⁻²², the role of medical and generic competencies in the labour market^{23,24} and previous research on the transition to hospital consultant.^{2,8}

The third part of the questionnaire was designed to collect data on the second research question and consisted of items with a five-point Likert scale measuring the perceived intensity of both specialty training and the transition to hospital consultant and also two items measuring the amount of social support received from colleagues and significant others. Finally, the Maslach Burnout Inventory (MBI) Human Services Survey²⁵ was included in order to obtain a better perspective on the perceived intensity of the transition. The MBI consists of twenty items in three subscales: emotional exhaustion, depersonalisation and reduced sense of personal accomplishment. Burnout is defined as scores above the cut-off values for high emotional exhaustion and depersonalisation or as high scores on emotional exhaustion with low scores on personal accomplishment.²⁶

Statistical analysis

During the data collection phase, we used preliminary data characteristics to perform power analyses with G*Power 3.²⁷ This enabled us to check whether our sample sizes yielded enough power (>90%) to detect a difference between the study populations with an effect size of 0.2. With an alpha of 0.05 the required sample size for each of the two groups was 542.

After replacing missing values by means of two-way imputation ²⁸, we used descriptive statistics and chi-square tests to compare the demographic characteristics of the Danish and Dutch participants and to screen for any differences between the countries or between specialty groups, i.e. medical, surgical or supportive specialties (radiology, pathology, etc.), and psychiatry. Furthermore, we compared whether the distribution of respondents over the four specialty groups was representative of the total study populations of the two countries in order to screen for possible response bias. We investigated for any significant between-country differences in preparation for practice by performing independent t-tests for the data on competencies and the perceived intensity of the transition. Regression analyses were performed to determine whether significant demographic differences between the countries contributed to differences in levels of preparation or perceived intensity. All significance levels were set at $p < 0.05$.

Ethical considerations

The Netherlands

Ethical approval was granted by the Medical Ethical Review Committee of the St Lucas Andreas Hospital Amsterdam, the Netherlands. The cover letter informed the participants that returning the completed questionnaire signified informed consent for anonymous usage of the data for scientific research and publication.

Denmark

Ethical approval was received from the Ethical Review Committee of the Capital Region, Denmark. We received permission from the Danish Data Protection Agency to retrieve the addresses of potential participants from the database of the National Board of Health. The cover letter informed the participants that all data would be used anonymously for scientific research into the transition to hospital consultant.

Results

The Dutch and Danish consultants returned 840 (32%) and 691 (52%) completed questionnaires, respectively. We rejected data from 48 Dutch and 14 Danish consultants due to gross incompleteness, such as no data for an entire subscale, resulting in 792 Dutch and 677 Danish (total 1469) questionnaires for the analysis. There were no between-country differences in male/female ratio and amount of time in the new consultant position. Dutch and Danish new

consultants were 36 (SD 4.0) and 44 (SD 5.4) years of age, respectively, a difference of eight years. The distribution over specialty groups of the respondents (medical, surgical etc.) was similar to the total population in the Netherlands, but in Denmark the surgical consultants were slightly underrepresented whereas the consultants in a supportive specialty were somewhat overrepresented. All demographics are presented in Table 1.

Table 1. Demographic characteristics of the participating new hospital consultants in the Netherlands (n = 792) and Denmark (n = 677).

Demographics	Respondents (NL) % n = 792	Population (NL) % n = 2643	Respondents (DK) % n = 677	Population (DK) % n = 1336	Pearson Chi Square
Gender					
Men	43		48		$X^2 = 2.58, p = 0.11$
Women	57		52		
Age distribution (years)					
<35	46		1		$X^2 = 747.96, p < 0.001$
35-40	45		24		
40-45	7		43		
>45	2		32		
No. of months as a new consultant					
0-6	15		14		$X^2 = 3.68, p = 0.30$
6-12	29		27		
12-24	32		31		
> 24	24		28		
Specialty group					
Medical specialties	42 ¹	41 ²	35 ³	32 ⁴	$(1 \times 2) = X^2 = 0.87, p = 0.83$
Surgical specialties	24 ¹	24 ²	25 ³	31 ⁴	
Supportive specialties	20 ¹	21 ²	30 ³	25 ⁴	$(3 \times 4) = X^2 = 45.0, p < 0.001$
Psychiatry	14 ¹	14 ²	10 ³	12 ⁴	

Participants from both countries showed similar small competency gaps, indicating high levels of preparation, for medical competencies, with mean scores on clinical knowledge and skills of 0.38 (SD 0.66) and 0.32 (SD 0.70) for the Dutch participants and 0.38 (SD 0.87) and 0.34 (SD 0.88) for the Danish participants, ($t(1469) = -1.86, p = 0.06$) and ($t(1469) = -0.62, p = 0.53$), respectively. On several other competencies, however, the Danish participants reported better preparation than their Dutch colleagues. For Dutch new consultants we found significantly larger competency gaps for the generic competencies handling management issues (1.60 (SD 1.10)) versus Danish participants (0.71 (SD 1.05)) ($t(1469) = 15.88, p < 0.001$) and handling financial aspects in healthcare (1.89 (SD 1.16)) versus Danish participants (1.02 (SD 1.14)), ($t(1469) = 14.51, p < 0.001$). Table 2 and Figure 1 show the competency gaps for all competencies in the questionnaire.

Table 2. Competency gap scores as indicated by new hospital consultants in the Netherlands (n = 792) and Denmark (n = 677).

	Mean (SD) NL	Mean (SD) DK	Independent t-test df = 1469
Medical competencies			
1. mastery of clinical knowledge	0.31 (0.66)	0.38 (0.87)	t = -1.86 Φ
2. mastery of clinical skills	0.32 (0.70)	0.34 (0.88)	t = -0.62 Φ
3. capability of carrying final responsibility for patient care	0.61 (0.85)	0.26 (0.90)	t = 7.61 **
Generic competencies			
4. capability of practicing evidence based medicine	0.17 (0.77)	0.38 (0.92)	t = -4.60 **
5. skill at keeping knowledge and skills 'up to date' through, for instance, continuous professional development	0.29 (0.77)	0.55 (0.99)	t = -5.51 **
6. skill at communicating with patients	0.33 (0.70)	0.42 (1.03)	t = -1.98 Φ
7. skill at giving feedback	0.64 (0.85)	0.58 (0.99)	t = 1.24 Φ
8. skill at receiving feedback	0.35 (0.84)	0.59 (0.94)	t = -5.03 **
9. skill at asking for feedback	0.42 (0.89)	0.65 (0.98)	t = -4.65 **
10. capability of working in a team with colleagues and other medical specialists	0.20 (0.66)	0.21 (0.91)	t = -0.08 Φ
11. capability of working in a team with nurses and others	0.16 (0.64)	0.10 (0.83)	t = 1.39 Φ
12. skill at training specialist registrars and medical students	0.36 (0.91)	0.44 (0.95)	t = -1.79 Φ
13. capability of supervising specialist registrars on the ward	0.77 (1.11)	0.42 (0.99)	t = 6.31 **
14. capability of supervising specialist registrars from a distance during on call shifts	1.16 (1.27)	0.51 (1.03)	t = 10.81 **
15. skill at leadership with regard to individuals and teams	1.13 (1.04)	0.67 (1.03)	t = 8.50 **
16. skill at management	1.60 (1.10)	0.71 (1.05)	t = 15.88 **
17. skill at time management	1.13 (1.20)	0.68 (1.09)	t = 7.55 **
18. capability of handling financial aspects of healthcare	1.89 (1.16)	1.02 (1.14)	t = 14.51 **
19. capability of working effectively within the organizational structure of the hospital and healthcare system	1.08 (1.12)	0.62 (1.13)	t = 7.69 **

New consultants scored on a 5 point scale for each competency (A) their perceived level of competence achieved at the end of specialty training and (B) the level of competence required for their current position as a hospital consultant. Subtracting A from B yielded the 'competency gap' score and high competency gap scores are considered indicative of low levels of preparedness for that competency. Significance levels were set at $p < 0.05$

Φ $p > 0.05$

** $p < 0.001$

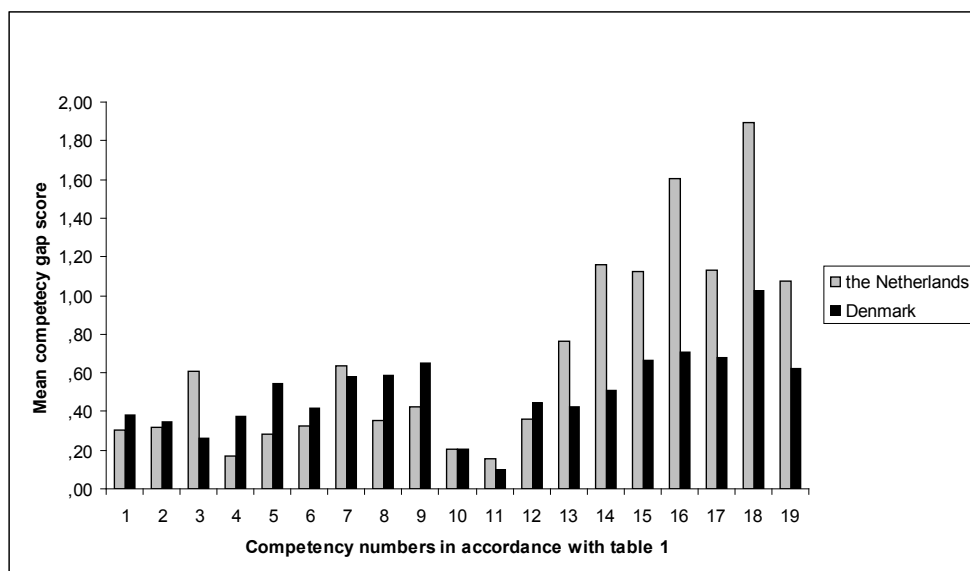


Figure 1. Presentation of competency gap scores as indicated by new hospital consultants in the Netherlands (n = 792) and in Denmark (n=677).

Compared to their Dutch counterparts the Danish new consultants had lower scores on the perceived intensity of specialty training (mean 3.08, (SD 0.97)) versus Dutch consultants (mean 3.82, (SD 0.76)); ($t(1469) = 16.12, p < 0.001$) and the transition to hospital consultant (mean 3.17, (SD 1.19)) versus (mean 3.97, (SD 0.85)); ($t(1469) = 14.52, p < 0.001$) (Table 3). Table 4 shows no significant differences for the total amount of social support from colleagues and significant others, but a significantly higher percentage of burnout among Dutch female consultants compared to their Danish counterparts (11.8% versus 6.5%; $\chi^2(1, N = 1469) = 8.08, p = 0.004$), whereas no significant difference in this respect was found between the male consultants.

Secondary regression analysis showed that of the demographic characteristics only gender had an impact on four of the twelve generic competencies showing significant between-country differences in levels of preparation. Female consultants reported significantly larger competency gaps for competencies 4, 5, 13 and 14 (table 1), relating to professional development and supervision, with standardised betas of 0.07, $p = 0.007$; 0.10, $p < 0.001$; 0.1, $p < 0.001$ and 0.09, $p = 0.001$, respectively. The eight-year age difference between Danish and Dutch new consultants was not associated with levels of preparation, perceived intensity or burnout.

Table 3. Perceived intensity and support in the transition of new hospital consultants in the Netherlands (n = 792) and Denmark (n = 677).

Descriptives of measurements	Mean (SD) (NL)	Mean (SD) (DK)	Independent t-test df = 1469
Perceived intensity of specialty training	3.82 (0.76)	3.08 (0.97)	t = 16.12, p < 0.001
Perceived intensity of starting as a consultant	3.97 (0.85)	3.17 (1.19)	t = 14.52, p < 0.001
Perceived support during the transition	4.10 (0.65)	4.15 (0.79)	t = -1.46, p = 0.14

Table 4. Percentages of new hospital consultants that meet the criteria of burnout in the Netherlands (n = 792) and Denmark (n = 677).

Burnout	% (NL)		% (DK)		Pearson Chi Square
Men	6.4	n = 22	9.0	n = 29	X ² (1, N = 1469) = 2.47, p = 0.12
Female	11.8	n = 53	6.5	n = 23	X ² (1, N = 1469) = 8.08, p = 0.004
Total	9.5	n = 75	7.7	n = 52	X ² (1, N = 1469) = 1.48, p = 0.22

Discussion

We conducted an international comparative study on the transition from postgraduate trainee to hospital consultant expecting that the results of comparisons between perceived levels of preparation for independent practice as a consultant, intensity of the transition, and burnout would provide insight into the transition process that might be used to inform measures to ease the transition. The main differences were related to generic competencies, with Danish consultants reporting higher levels of preparation for leadership, management, and handling financial aspects of healthcare while Danish consultants also appeared to experience both their training and the transition to consultant as less intense and stressful, with significantly fewer female Danish consultants meeting the criteria for burnout.

Interpretation, explanation, and comparison with the literature

The comparison of contextual characteristics, such as working conditions and organisation of healthcare and specialty training, provides valuable background information and possible explanations for the differences between the countries. We will elaborate on some of the main differences and relate them to the relevant literature. However, we do not postulate that this connection to literature results in overarching explanations, but rather in assumptions that should receive further attentions in future research. By doing so, it is illustrated that there is more to the transition to consultant than just preparation through the content of postgraduate medical training.

Preparation for generic competencies

Danish new consultants reported better preparation for several generic competencies, suggesting that in Denmark specialty training is better geared to meeting the requirements of a new consultant. This raises the question whether the reported higher level of preparation is attributable to specialty training or to less heavy demands with respect to generic competencies due to organisational factors. The latter explanation might apply for example for 'handling financial aspects of patient care', where the difference may be explained by the fact that Danish consultants do not depend for their income on the financial status of their department or hospital. More specifically, unlike the earnings of Dutch consultants, the income of Danish consultants is not based on a fee for service system, and the 'urgency' of this competency is therefore likely to be lower in Denmark than in the Netherlands. Although the differences between some gaps in generic competencies may be partially related to organisational aspects, the results nevertheless suggest that Denmark has achieved a better overall alignment of specialty training with practice, and consequently provides doctors with better preparation for generic competencies. For example, Danish consultants showed smaller competency gaps for 'capability of supervising specialist registrars from a distance during on call shifts' and 'capability of carrying final responsibility for patient care', areas in which consultants are expected to be competent regardless of organisational conditions. The differences with regard to these two competencies may be explained by the fact that Danish senior registrars from an early stage of training regularly supervise interns and junior registrars, enabling them to master this competency and offering opportunities to experience what it means to be responsible for patient care while being unable to examine patients hands on. Such progressive independence during specialty training may enhance the development and identity building of Danish consultants²⁹⁻³¹, whereas the lower scores on these competencies reported by the Dutch consultants are probably associated with their relative inexperience in supervising trainees.

Intensity of training and transition

The Danish consultants scored lower on the intensity of specialty training and the transition to consultant compared to their Dutch colleagues. This may reflect first of all that Danish specialty training offers better preparation for hospital work, which would be consistent with statements by Brown et al. that better alignment could result in a smoother and less intense transition.³ Secondly, as described in the methods section, working conditions differ quite considerably between the two countries. In Denmark, working hours are limited to 37 hours a week compared to 48 hours in the Netherlands. There is compelling evidence that longer working hours are associated with higher stress levels, reduced job satisfaction, and burnout in specialty trainees and hospital consultants.^{32,33} Impairment of the work-life balance due to longer working hours has been shown to cause stress and negative emotions³⁴, and was identified previously as adding to stress related to the transition to consultant, as many new consultants have young families with

attending responsibilities such as finding suitable day-care facilities and schools.² The transition period consequently appears to be affected by the discrepancy between the two countries in working hours and parental leave. It seems likely that regulatory aspects like working hours, maternity leave and day care facilities contribute to the differences between Danish and Dutch consultants in the experienced intensity of the transition alongside the differences in levels of preparedness. The significantly lower degree of burnout among Danish female consultants lends further support to this interpretation. Since stress and burnout among physicians are known predictors for diminished quality of delivered patient care and increased adverse outcomes^{35,36}, these findings deserve serious consideration.

Differences in age and training programmes

Although our analysis showed no significant effect of the eight-year age difference between the Danish and Dutch new consultants on preparation for practice or the intensity of the transition, there may have been an effect that was not captured by our results. Emotional maturity due to life experience and increasing age has been shown to influence the transition from preclinical to clinical training³⁷ and may have contributed also to Danish consultants perceiving the transition as a less intense period. Training programmes may also have impacted on between-country differences, since some of the Danish participants (cohorts 2009 and 2010) were enrolled in programmes designed in accordance with the CanMEDS framework, whereas almost all of the Dutch participants finished their training before the introduction of CanMEDS-based programmes. However, the absence of significant differences in competency gaps and perceived intensity of the transition between the Danish cohorts of 2007-2008 and 2009-2010 suggests that it is unlikely that the smaller competency gaps in Denmark can be attributed solely to competency-based training.

Cultural and societal differences

Another explanation for Danish new consultants perceiving the transition as less intense may be related to the lower score on Hofstede's PDI, implying that in Denmark it is more usual for decisions to be made in a communal setting where individual decisions are commonly questioned by other team members.^{17,18} Moreover, junior doctors in Denmark are expected to contribute to clinical decision making from an early stage of training, giving them ample experience with shared decision making, which may alleviate the burden of individual responsibility. Dutch consultants, on the other hand, who are generally not trained in a culture of shared decision-making characterised by 'all for one and one for all' may consequently experience a stronger sense of individual responsibility causing them to perceive the transition as more stressful due to the huge increase in new tasks and responsibilities.^{2,8}

Strengths and limitations

To our knowledge, this is the first study to examine the transition from trainee to hospital consultant from an international comparative perspective. This strengthens the originality of these results and the derived insights. However, we acknowledge that the accompanying complexity of such an international comparison is likely to mark the onset of an arduous research agenda, rather than result in an inclusive understanding of all factors present in the transition, due to clouding of the findings by possible confounders outside the scope of this research project. Another strength is the large study population, comprising all new hospital consultants in the Netherlands and Denmark who completed their training in the same three to four year period. However, the low response in the Netherlands (32%) may have introduced some form of non-response bias and the results should therefore be interpreted with some caution, although several arguments appear to challenge this point of view. Firstly, the risk of selection bias is reduced in population studies, and recent evidence on non-response rates and non-response bias suggests that the assumed association between these aspects may often be absent.³⁸ Secondly, the actual sample sizes of 792 and 677 are well over the required sample size (542) calculated in the power analysis. Finally, the fact that the distribution of respondents in the Netherlands over the specialty groups (Table 2) is almost identical to that of the Dutch study population further diminishes the possibility of selection bias due to non response in the Netherlands. It seems therefore reasonable to assume that our sample sizes consisting of 32% and 52% of the total new consultants were acceptable for these study purposes. Another possible limitation is the use of a self-assessment survey, which may not be an optimal predictor of actual performance.³⁹ We were more interested, however, in identifying differences between Danish and Dutch consultants in their perceived preparation through specialty training and the experienced intensity of transitioning to hospital consultant than in measuring objective competence levels. Although the large systematic differences that we found between the countries were based on self-report measures, they nevertheless provide valuable insights into the transition process. A final limitation could be the language of the questionnaire. Dutch participants were given a questionnaire in their native language, whereas the Danish participants were given an English-language questionnaire. Considering that the Danish population in general is quite familiar with the English language, it seems safe to assume that this did not pose a real problem to the well educated Danish participants.

Possible implications and future research

This study illustrates how investigating the transition to consultant can provide insight into the alignment of the content of specialty training and the work of a hospital consultant as a measure of the efficacy of training programmes. Also, we have shown that a comparison of different settings or countries affords more in depth understanding of this transition and the contextual factors involved. In both Denmark and the Netherlands, new consultants reported better preparation for

medical than for generic competencies. Clinical supervisors, curriculum architects and specialty trainees might strive to achieve better preparation for generic competencies by either more attention to these competencies during specialty training or by offering new consultants remedial courses or coaching to alleviate the transition stage. Generic competencies are incorporated in the new CanMEDS-based specialty training programmes in the Netherlands and Denmark, but only the two most recent cohorts of Danish new consultants were trained in the new programmes. Programme directors and clinical supervisors, however, have been reported to struggle with the generic CanMEDS roles^{40,41} and it seems therefore plausible that it will take time before any measurable effects of the new programme will be noticeable. Future research should investigate if over time new consultants will report higher levels of preparation for generic competencies as the new competency-based programmes with explicit attention for generic competencies become more firmly established.

The fact that Danish consultants reported better preparation for the generic competencies of a consultant warrants further investigation. We have suggested several possible explanations for this, which should be tested in future research, such as the relationship between working time and the perceived intensity of the transition. Working time restrictions for specialty trainees are a controversial issue within the medical domain, and it is often argued that a reduction in training hours will result in less well prepared consultants.⁴²⁻⁴⁴ A transatlantic comparison of surgeons' competencies, however, failed to substantiate this effect for both procedural skills and cognitive knowledge.⁴⁵ Our study confirms this finding by showing that despite their 37 hour week as trainees the Danish consultants reported better preparation than their Dutch counterparts, who worked a 48 hour week. The impact of working hour restrictions on the quality of specialty training and consequently on the transition to consultant appears to be an important area for further research.

References

1. Morrow G, Illing J, Burford B, Kergon C. Are specialist registrars fully prepared for the role of consultant? *The clinical teacher*. 2009;6:87-90.
2. Westerman M, Teunissen PW, Vleuten van der CPM et al. Understanding the transition from resident to attending physician: a transdisciplinary, qualitative study. *Acad Med*. 2010;85:1914-9.
3. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)*. 2009;70:410-4.
4. Nicholson N. The transition cycle: causes, outcomes, processes and forms. In: Fisher S, Cooper CL, eds. *On the move: the psychology of change and transition*. New York: John Wiley & Sons inc.; 1990:83-108.
5. Westerman M, Teunissen PW, Fokkema JPI et al. The transition to hospital consultant and the influence of preparedness, social support, and perception; a structural equation modeling approach. *Accepted for publication in Medical Teacher* 2012.
6. Tallentire VR, Smith SE, Skinner J, Cameron HS. Understanding the behaviour of newly qualified doctors in acute care contexts. *Med Educ*. 2011;45:995-1005.
7. Teunissen PW, Westerman M. Junior doctors caught in the clash: the transition from learning to working explored. *Med Educ*. 2011;45:968-70.
8. Teunissen PW, Westerman M. Opportunity or threat; ambiguity in the consequences of transitions in medical education. *Med Educ*. 2011;45:51-9.
9. Beckett M., Hulbert D., Brown R. The new consultant survey 2005. *Emerg Med J*. 2006;23:461-3.
10. Naeem A, Rutherford J, Kenn C. From specialist registrar to consultant: permission to land? *Psychiatric Bulletin*. 2005;29:348-51.
11. Kite S, Salt S. Transition from SpR to consultant: a survey of training needs in palliative medicine. *Palliat Med*. 2006;20:53.
12. Cook DA, Bordage G, Schmidt HG. Description, justification and clarification: a framework for classifying the purposes of research in medical education. *Med Educ*. 2008;42:128-33.
13. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
14. <http://stats.oecd.org/Index.aspx>. OECDStat.Extracts . 25-11-2011. accessed on 6-12-2011.
15. Scheele F, Teunissen P, Van Luijk S et al. Introducing competency-based postgraduate medical education in the Netherlands. *Med Teach*. 2008;30:248-53.
16. Lillevang G, Bugge L, Beck H, Joost-Rethans J, Ringsted C. Evaluation of a national process of reforming curricula in postgraduate medical education. *Med Teach*. 2009;31:260-6.
17. Hofstede G. *Culture's consequences: International differences in work-related values*. London: Sage Publications; 1980.
18. Hofstede G. *Culture's consequences. Comparing values, behaviors, institutions, and organizations across nations*. New York: Sage Publications; 2001.
19. Jippes M, Majoor G. Influence of national culture on the adoption of integrated medical curricula. *Advances in Health Sciences Education*. 2011;16:5-16.
20. Prince KJ, Boshuizen HP, van der Vleuten CP, Scherpbier AJ. Students' opinions about their preparation for clinical practice. *Med Educ*. 2005;39:704-12.
21. Schmidt HG, Vermeulen L, van der Molen HT. Longterm effects of problem-based learning: a comparison of competencies acquired by graduates of a problem-based and a conventional medical school. *Med Educ*. 2006;40:562-7.
22. Jaarsma DA, Dolmans DH, Scherpbier AJ, van Beukelen P. Preparation for practice by veterinary school: a comparison of the perceptions of alumni from a traditional and an innovative veterinary curriculum. *J Vet Med Educ*. 2008;35:431-8.
23. Meng C. *Discipline-Specific or Academic? Acquisition, Role and Value of Higher Education Competencies*. Maastricht, The Netherlands: ROA, 2005.
24. Semeijn JH. *Academic Competencies and Labour Market Entry studies among Dutch graduates*. Maastricht, the Netherlands: ROA, 2005.

25. Maslach C, Jackson S.E., Leiter M.P. *Maslach Burnout Inventory Manual*. 3 ed. Palo Alto, California: Consulting Psychologists Press Inc.; 1996.
26. Schaufeli W, Dierendonck van D. *UBOS Utrechtse Burnout Schaal handleiding*. Lisse, The Netherlands: Swets & Zeitlinger B.V; 2000.
27. Faul F, Erdfelder E, Lang AG, Buchner A. G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*. 2007;39:175-91.
28. Sijtsma K, Van der Ark LA. Investigation and treatment of missing item scores in test and questionnaire data. *Multivariate Behav Res*. 2003;38:505-28.
29. Dijksterhuis MG, Voorhuis M, Teunissen PW et al. Assessment of competence and progressive independence in postgraduate clinical training. *Med Educ*. 2009;43:1156-65.
30. Rudland J, Bagg W, Child S et al. Maximising learning through effective supervision. *N Z Med J*. 2010;123:117-26.
31. Kennedy TJ, Regehr G, Baker GR, Lingard LA. Progressive independence in clinical training: a tradition worth defending? *Acad Med*. 2005;80:S106-11.
32. Fletcher KE, Underwood W, III, Davis SQ, Mangrulkar RS, McMahon LF, Jr., Saint S. Effects of work hour reduction on residents' lives: a systematic review. *JAMA*. 2005;294:1088-100.
33. Balch CM, Shanafelt TD, Dyrbye L et al. Surgeon distress as calibrated by hours worked and nights on call. *J Am Coll Surg*. 2010;211:609-19.
34. Keeton K, Fenner DE, Johnson TR, Hayward RA. Predictors of physician career satisfaction, work-life balance, and burnout. *Obstet Gynecol*. 2007;109:949-55.
35. West CP, Huschka MM, Novotny PJ et al. Association of perceived medical errors with resident distress and empathy: a prospective longitudinal study. *JAMA*. 2006;296:1071-8.
36. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med*. 2002;136:358-67.
37. Shacklady J, Holmes E, Mason G, Davies I, Dornan T. Maturity and medical students' ease of transition into the clinical environment. *Med Teach*. 2009;31:621-6.
38. Groves RM. Nonresponse Rates and Nonresponse Bias in Household Surveys. *Public Opinion Quarterly*. 2006;70:646-75.
39. Eva KW, Regehr G. "I'll never play professional football" and other fallacies of self-assessment. *J Contin Educ Health Prof*. 2008;28:14-19.
40. Davis DJ, Skaarup AM, Ringsted C. A pilot survey of junior doctors' confidence in tasks related to broad aspects of competence. *Med Teach*. 2005;27:548-52.
41. Ten Cate TO, Scheele F. Competency-based postgraduate training: can we bridge the gap between theory and clinical practice? *Acad Med*. 2007;82:542-7.
42. Steinbrook R. The debate over residents' work hours. *N Engl J Med*. 2002;347:1296-302.
43. Mullins MD, Mascolo MC. Residents' work hours. *N Engl J Med*. 2003;348:664-6.
44. Charap M. Reducing resident work hours: unproven assumptions and unforeseen outcomes. *Ann Intern Med*. 2004;140:814-5.
45. Schijven MP, Reznick RK, ten Cate OT et al. Transatlantic comparison of the competence of surgeons at the start of their professional career. *Br J Surg*. 2010;97:443-9.

New consultants mastering the role of on call supervisor: a longitudinal qualitative study

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Under review

Abstract

Introduction

Supervision of specialist registrars during on call shifts is essential to ensure the quality of both healthcare and medical education, but has been identified as a major novelty and stressor for new consultants in the transition from specialty training. There is a paucity of research on how consultants deal with their new supervisory role and which factors influence this process. These issues are addressed in a prospective study aimed at gathering insights that can inform measures for ensuring high quality supervision and specialty training.

Methods

A longitudinal qualitative study was performed in the Netherlands by conducting semi-structured interviews with new consultants, guided by an interpretative phenomenological approach until saturation was reached. At three month intervals between July 2011 and March 2012, eight novice consultants in internal medicine were interviewed three times about their supervisory role while on call: their preparation for that role by training, their actions to master this role, and their progression over time.

Results

Three interrelated domains of relevant factors emerged from the data: preparedness, personal attributes, and contextual characteristics. Preparedness by training for taking full responsibility for registrars' actions while supervising them from a distance. Personal attributes, like coping strategies and views on supervision, guided consultants' development as supervisors. Essential to this process were contextual characteristics, especially knowing the registrar, being familiar with departmental procedures, and support from colleagues.

Discussion

New consultants should be prepared for their supervisory role by training and a proper introduction to their workplace. The former requires progressive independence and exposure to supervisory tasks during specialty training, while the latter requires an induction program enabling new consultants to familiarize themselves with the departmental environment and the registrars they will be supervising.

Introduction

To ensure quality health care and medical education, hospital consultants are expected to be able to provide adequate supervision to registrars.¹ There is evidence that good clinical supervision is associated with improved patient and educational outcomes.²⁻⁴ Consequently, practical guidelines have been formulated for clinical supervisors^{5,6}, but most of the published research focuses on the supervisory process, such as the frequency, content, and effectiveness of supervision, while hardly any attention is paid to the development of supervisory skills and role performance.⁷ Insight into how hospital consultants develop supervisory skills can inform measures to ensure high quality supervision and patient care as well as training in supervisory skills during specialty training.

Supervising registrars, especially during on call shifts, has been identified as a major stressor for physicians who have just made the transition from registrar to hospital consultant.^{8,9} Since most graduate training programs do not prepare registrars for this role,^{10,11} physicians are forced to develop the relevant skills on the job after completion of training. There is evidence that it can be a struggle for novice consultants to supervise registrars about whom they know very little and to take responsibility for the care of patients they have not seen for themselves.⁸ It is issues like these that can potentially compromise the quality of supervision and threaten patient safety.³ New consultants are expected to provide good health care and contribute to the training of registrars, and this combined responsibility complicates their novel task of supervision during on call shifts. Evidence that poor preparation for the supervisory role is associated with high burnout rates among new consultants¹² supports arguments that training in supervisory skills should be included in specialty training programs to ensure patient safety, high quality medical education, and the well-being of new consultants. To help new consultants perform their supervisory tasks during on call shifts, insight is needed into factors affecting their performance. We therefore conducted a qualitative longitudinal study to investigate the following research questions: (1) How do new consultants develop in the role of on call supervisor? (2) Which factors are important for this development?

Methods

Design

Since supervision of registrars by new consultants during on call shifts is an area of medical education that so far has received scant attention from researchers, we conducted an exploratory qualitative study among new consultants in internal medicine. The restriction to internal medicine was made to prevent the issue from being clouded by effects of differences between medical specialties. At three month intervals, we conducted three individual semi-structured interviews with new consultants to prospectively trace the development of their supervisory skills over an extended period of time, something that would not have been feasible in a cross sectional design.

Setting

The study was conducted in the Netherlands, where registrars embark upon six years of specialty training in internal medicine immediately after graduating from a six-year undergraduate medical program. Specialty training comprises four years of rotations on different wards, in the emergency department, intensive care unit, and outpatient clinics, followed by two years of differentiation in a subspecialty, such as nephrology or oncology. Programs are delivered by academic medical centres and affiliated general teaching hospitals. After completion of training, physicians usually find a position as a consultant in an academic or general teaching hospital.

Participants and procedure

We identified potential participants via the directors of the regional internal medicine programs in the Netherlands, who provided lists of registrars that had recently completed or were about to complete their training. Sampling of participants continued until theoretical saturation was reached, i.e. analysis of subsequent interviews did not reveal any new analytical concepts or insights.¹³ Of the total of twelve new consultants invited by email to participate in the study, three did not meet the inclusion criteria because they did not supervise registrars and one declined to participate due to lack of time. Three interviews were conducted by MW with each of the remaining eight participants between July 2011 and March 2012. The first interview was conducted within eight weeks of starting work as a consultant, and the second and third interviews were scheduled three and six months after the first interview, respectively. All interviews were audio recorded and transcribed verbatim after informed consent was obtained from the participants. Ethical approval was granted by the ethical review board of the Dutch Association for Medical Education and confidentiality was guaranteed by anonymous processing of the data.

Interviews and analysis

The constructs addressed during the interviews were developed by an expert panel, consisting of medical doctors, experienced medical education researchers, and a psychologist, in a series of discussions based on the research questions and the relevant literature.^{8,14,15} The central topic of the first interview was how the consultant had been prepared by training to provide on call supervision, and the interviewees were also asked what steps they had taken to ensure appropriate performance of their supervisory role. The second and third interviews focused on the consultants' experiences and their development as supervisors.

In our methodology and method we were guided by a constructivist epistemology.^{16,17} We believe that the complexity of the process under investigation in this project does not allow for a single or sole interpretation of reality, but that a true understanding of this process results from inductive reasoning and interaction between researchers and participants.¹⁶ More specifically, we used an interpretative phenomenological analysis approach (IPA) which is based on both

phenomenology and hermeneutic foundations. The phenomenological character enables the understanding or giving voice to participants concerns, experiences, and issues whereas the interpretative or hermeneutics foundation permits the contextualization of these concerns and experiences from a psychological perspective.¹⁸ IPA enables through standardized processes of analysis and interpretation, to derive meaning from participants' accounts in order to gain insight into aspects of human development in a specific psychological process.^{18,19}

The interview transcripts were entered into qualitative data analysis software (maxQDA7). To enable identification of emerging issues and experiences for further exploration in subsequent interviews, the analysis commenced during the first round of interviews.^{20,21} After the main researcher (MW) coded four transcripts of the first interview round, a second researcher (JF) recoded one of those transcripts by using the coding structure present at that moment. Emerging differences were discussed and resulted in a slightly altered coding structure, although no major alternatives surfaced. The iterative process of open coding²², analysis, and interpretation led to the identification of three domains that captured the participants' experiences.¹⁹ After several discussions of these domains, the research team agreed on the final results.

Results

The participants were five female consultants and three male consultants, with a mean age of 36 years (range 32-44 years). Two held a position in nephrology, two in oncology, one in haematology, one in vascular medicine, and one in rheumatology. On average, they were first interviewed six weeks after commencing their new post (range 3-8 weeks).

The analysis revealed multiple factors, impacting on the development of the new consultants in their supervisory role, which could be categorized under three domains: preparedness, personal attributes, and contextual characteristics. The development of new consultants' supervisory skills appeared to be affected by continuous interactions between the domains. To clarify the factors of the three domains, we prepared two fictitious narratives consisting of compilations of the concrete experiences of all eight participants, illustrated with quotes from the interviews. These narratives exemplify how different factors facilitate or obstruct the consultants' development. The narratives are followed by a detailed description of the three domains and their interrelationships.

The stories of Brian and John

On the same day, Brian and John join the group of over thirty consultants in the department of internal medicine in hospital X. Having spent the last part of his specialty training in this very department, Brian is familiar with his new surroundings, but for John everything is new. As a senior registrar, Brian was given increasing autonomy by his supervisors until he was able to work

quite independently. John, on the other hand, was expected to consult his supervisor on almost every decision he made throughout his specialty training. Brian had supervised junior registrars during on call shifts independently albeit with backup from an experienced consultant whom he could consult whenever he felt this was appropriate. John had not been given a similar learning opportunity.

As a new consultant, Brian experiences his role as supervisor during on call shifts as a natural progression from his supervisory experiences as a registrar. Obviously, he is aware of his altered position within the chain of command and his final responsibility, but his earlier supervisory experiences have given him confidence in his clinical knowledge and made him feel quite competent to decide on the right course of action when confronted with a problematic situation. *"... I found that there weren't any major gaps in my clinical know-how, so I felt more confident about my ability as a supervisor..."* (P8) Also, Brian is familiar with the department and the hospital. He knows how to handle patient logistics and which consultant from other specialties to consult. Finally, his fellow consultants, acknowledging that he is new to the job, frequently inquire how he is getting on and invite him to consult them at any time. This boosts his confidence that he is up to the task of supervising registrars during on-call shifts.

John, by contrast, experiences supervising registrars during on-call shifts as stressful and demanding due to the novelty of the situation where he is unable to see patients himself but nevertheless has the final responsibility for their care. *"...sure you can ask some probing questions, but in the end you have to act upon the information the registrar gives you..."* (P1) Also, being new to the department and unfamiliar with its routines and staff adds to John's burden. *"... I did not know the registrar, the nurses, or any of the consultants from the other disciplines ...And this patient was very ill! On top of that I had to use the ultrasound but had no idea how to operate this specific type! So at that time I already was... I was completely stressed out!"* (P1) To make matters even worse, unlike Brian who knows all the consultants and feels he can count on their support, John feels completely lost: *"...there are far too many consultants in this group. So I feel I have to do everything myself; I don't know to whom I can turn! And they just don't know I'm new here, I'm just another consultant"* (P3).

As the months pass, Brian adapts smoothly to his supervisory role, but John remains uncertain and lacks confidence. Unlike Brian, whose development is aided by the fact that he knows nearly all of the registrars, John fails to get to know the registrars and continues to struggle. *"It's very difficult to supervise someone you don't know. Because you don't know if they are competent or not, where they are in their training etc. You have no idea so you don't know how to supervise them..."* (P5) Being familiar with most of the registrars and their capabilities, Brian knows when it is safe for him to rely on the clinical judgment of a particular registrar.

Brian acts proactively, meeting problems head on to improve his situation. First of all, he regularly seeks feedback from both his fellow consultants and the registrars, asking them to comment on his performance as a supervisor or to tell him how they would have handled a specific case. This strategy allows him to accumulate knowledge and understanding. As he reflects on his new experiences, his expertise grows and so do his skills as a supervisor. Furthermore, Brian confronts registrars about any incidents that occur in order to prevent recurrence. John, however, shares his experiences only with his wife, but not with his colleagues, and he doesn't ask for feedback. That would be inappropriate, he feels, based on the assumption that he is expected to be a competent consultant that is capable of dealing with any situation independently. John refrains from discussing an incident with the registrar in question, concluding that he should be more on top of his game. As a result, John continues to entertain serious doubts about his competence and is unable to get a handle on how to provide effective supervision. After six months, John is still taking a rigid and controlling approach to supervision and acts defensively in delivering patient care. He is inclined, for instance, to request superfluous additional lab tests or diagnostic procedures and feels he has to check every piece of information from the registrars he supervises, needing as much information as possible to alleviate his uncertainty. After six months, Brian, on the other hand, has confidently adopted a rather laid back supervisory style giving registrars ample opportunity to contribute to the decision making, while steering clear of the pitfall of allowing registrars to work on their own without any guidance.

In these narratives composed of the concrete experiences of all the participating consultants, it is quite easy to discern the three domains of preparedness, personal attributes, and contextual characteristics. We will now describe in depth the essence of these domains and their interrelationships.

Preparedness

Preparedness for the role of supervisor depends first and foremost on having gained sufficient clinical knowledge to provide good patient care. Like Brian, participants indicated that they considered relevant clinical knowledge pivotal to their development as a supervisor. Preparedness is also directly associated with consultants' confidence in their ability to fill the supervisory role and the responsibilities it entails. As was illustrated by the stories of John and Brian, the consultants considered prior experience with supervisory tasks during specialty training crucial preparation for their supervisory responsibilities as a consultant. Early exposure to supervisory tasks also appeared to prepare consultants for dealing with situations in which they had to depend on the sometimes unstructured and incomplete information provided by registrars. Practical experience in supervising junior registrars prepared consultants for dealing with the tensions inherent in the combined responsibility for patient care and medical education: *"...the registrar has to learn something from my supervision, that's important. But at first it was impossible for me to give time*

and attention to that; I was simply too busy surviving! Right now I am trying to focus more on the training aspect of my supervisory role ... to pay attention to how they present a case etc..." (P2)

Personal attributes

Several personal attributes appeared to have a strong impact on consultants' development in their supervisory role. First of all, new consultants' approaches to supervision appeared to be driven by their views or beliefs on what constitutes good supervision, and these were more often than not grounded in their personal experiences, both positive and negative, during specialist registrar training: *"...As a registrar I had a supervisor who at night would come to the hospital of his own accord! That was so great and reassuring. That is why I'm also quite easy about coming in at night and helping out..." (P4)* This illustrates how positive experiences can shape new consultants' approaches to supervision. Unfortunately, the same applies for negative experiences. Consultants who had not been given increasing independence during specialty training appeared to be inclined to adopt a more rigid and directive approach to supervision.

Secondly, different strategies adopted by new consultants to handle problems led to different effects. Various steps to deal with salient issues described by participants could be labelled as either proactive (Brian) or evasive behaviour (John). Examples of proactive behaviour are seeking feedback on one's performance from registrars and fellow consultants, discussing incidents with the registrar concerned, and getting acquainted with registrars before supervising them. Such proactive behaviour yields information and opportunities that consultants can use to further their development. Evasive behaviour, like sharing experiences with a spouse and peers, or crying and seeking comfort, seems to offer temporary alleviation of stress and negative emotions, like feeling uncertain and incompetent, but seems hardly conducive to behavioural change and growth in professional roles. Finally, other personal attributes, like high self confidence and efficacy, also appeared to facilitate consultants' development.

Contextual characteristics

Participants pointed to familiarity with the department and the hospital as a vital factor in relation to their supervisory tasks. More specifically, knowing the registrar one is supervising was considered crucial as illustrated by the stories of Brian and John. Another influential contextual factor was the amount of support from fellow consultants. *"That's most important, a safe environment! ... Everyone here wants me to consult them if I feel uncertain about a patient!" (P5)* Another contextual factor that affected consultants' development was similarity between their current patients and the patients they had encountered during residency. *"I was trained to supervise in oncology in an academic hospital, but this bears no resemblance at all to oncology in my present department in a general teaching hospital" (P6)*

Interplay

It appeared that the development of new consultants' supervisory skills was affected by the interplay between preparedness, personal attributes, and contextual characteristics. For instance, while prior experience with supervision during training (preparedness) facilitated the onset of the developmental process, the progression of this process depended also on consultants' proactive behaviour (personal attribute), such as seeking feedback and discussing incidents. Contextual characteristics, such as familiarity with the department and the staff and a supportive attitude from colleagues, appeared to act as facilitators or, if absent, as inhibitors of the developmental process.

Discussion

This longitudinal qualitative study provided valuable insights into new consultants' strategies for dealing with their role of supervisor during on call shifts. The development of consultants in that role appeared to be affected by three interrelated domains. Preparedness through specialty training was the first domain, involving clinical knowledge and skills but also being responsible for registrars' actions and making decisions without actually seeing the patient. New consultants' personal attributes were identified as the second domain of influences, involving, for instance, a proactive attitude by seeking feedback and consulting with fellow consultants, with an apparent beneficial effect. The domain of contextual factors was also a strong determinant of consultants' development and included being familiar with people and procedures in the department and the hospital and getting to know registrars and their competencies before supervising them, as well as whether support and access to consultation of fellow consultants was provided.

Interpretation and comparison with the literature

The findings of this study are supported by notions from the medical education literature as well as by concepts from psychology research. The notion of preparedness taps into studies on the use and value of progressive independence during specialty training.^{23,24} Although this is a well established key feature of specialty training³, progressive independence traditionally stops short of the independent provision of patient care. The domain of preparedness that emerged in the present study relates not only to patient care but also to exposure to supervisory tasks and the attending responsibilities during specialty training. The current regulations with regard to clinical oversight and patient safety severely restrict the possibilities for registrars' progressive independence²³, and they may also put the brakes on registrars being allowed to perform supervisory tasks. Nevertheless, our results illustrate that in the long run lack of exposure to supervisory tasks can have detrimental effects on patient care and the quality of specialty training due to no or poor preparation for supervisory tasks. Our finding that knowing the registrar to be supervised as well as their level of training and competence seems prerequisite for

effective supervision and resonates with results presented by Kilminster *et al.*, who identified the supervisor-supervisee relationship as a central component of supervision.³

Additional insight into the implications of our results can be gained by viewing them from the perspective of psychological concepts, coping strategies and goal orientation in particular. Although definitions of coping vary, they all emphasize that coping involves intentional activity and behaviour aimed at promoting human adaptation.²⁵ A distinction is often made between problem or task oriented coping and emotion oriented coping.²⁶ The former strategy includes behaviours such as asking colleagues for information and seeking feedback in a search for ways to actively change a situation, whereas the latter strategy is aimed at alleviating the emotions and stress caused by the problem rather than at dealing with the problem itself. This strategy can give rise to self-blame for not performing more proficiently, avoidance of difficult situations, and complaining about difficulties to friends or family members, instead of sharing them with colleagues. Problem oriented coping has repeatedly been recognized as fostering positive personal development, whereas emotion oriented coping may offer temporary relief but in the end tends to perpetuate the discomfort.²⁷ We identified proactive behaviour, like discussing incidents, consulting experienced consultants, and getting to know the registrar under supervision, as facilitators of the development of supervisory skill. Solely sharing emotions with spouses or peers in order to overcome feelings of incompetence, on the other hand, appeared to be counterproductive and obstruct consultants' development.

Goal orientation is another psychological concept enabling further explanation of our results in which a learning goal is distinguished from a performance goal orientation.²⁸ The first is the extent to which one pursues information and feedback in order to learn and develop, whereas the latter denotes the extent to which one seeks feedback to demonstrate competence for the purpose of gaining favourable judgments of others.^{29,30} Our results illustrate that some participants (Brians) actively seek feedback and information in order to learn; whereas others (Johns) refrain from doing so since they hold the opinion that they are expected to be competent within their supervisory role. These two identified strategies of new consultants could be linked to a learning goal versus performance goal orientations of new consultants and provide further insight into why some consultants actively seek feedback upon their performance whereas others do not.

Strengths and limitations

To our knowledge, this is the first study aimed at clarifying how new consultants adapt to and grow in their role as supervisor during on call shifts. The longitudinal qualitative design enabled us to study this development in depth, which would not have been possible in a cross sectional design. The fact that notions from medical education and psychology lend support to our findings strengthens their validity. As the study was limited to internal medicine, the findings may not be

straightforwardly transferable to other medical specialties. Nevertheless, this drawback seems to be offset by the fact that we succeeded in achieving our aim of capturing the lived experiences and reality of our participants.^{16,20} There is no denying that conducting multiple interviews with the same participants may have affected their development and consequently both the data collection and the results³¹. However, we tried to prevent this adverse effect by having the entire research team engage in extensive reflection on the findings and by joint analysis of the data. Although a follow-up of more than six months might have shed more light on consultants' development, the current design afforded ample insights to answer our main research questions.

Implications and future research

We postulate that an important implication of this study is that, prior to embarking upon their supervisory tasks, new consultants should be familiar with patient logistics, characteristics of the organisation, and registrars and their competencies. Hospitals and departments could achieve this by an extensive induction program for new consultants. However, this would not release new consultants from the responsibility of being aware that they should get acquainted with registrars and taking appropriate steps to achieve this. Another implication is that colleagues of new consultants should be made aware that they can have a beneficial influence by providing social support and easy access to consultation. Support from colleagues could be expanded by mentoring by an experienced consultant specifically directed at the supervisory role. A mentor could help consultants to adopt positive coping strategies by stimulating them to engage in supported reflection on their performance and use the resulting insights to identify and pursue strategies to improve their supervisory skills. The results appear to provide convincing evidence for the long-term beneficial effects of registrars supervising their junior colleagues. Although patient safety should be guaranteed by the availability of a consultant who can be consulted by registrar-supervisors at all times, we think this type of experience may be critical for a smooth progression into the supervisor role as a consultant and mastering the relevant skills.

Future research should investigate the validity of our results among new consultants in other medical specialties. It also seems worthwhile to follow up on our participants and investigate whether and how they have advanced in their role as supervisor. Finally, the full effects of registrars' progressive independence and supervisory tasks should be investigated in depth to find the right balance between patient safety and high quality specialist registrar training.

References

1. Cottrell D, Kilminster S, Jolly B, Grant J. What is effective supervision and how does it happen? A critical incident study. *Med Educ*. 2002;36:1042-9.
2. Farnan JMM, Petty LAM, Georgitis EM et al. A Systematic Review: The Effect of Clinical Supervision on Patient and Residency Education Outcomes. *Academic Medicine*. 2012;87:428-42.
3. Kilminster SM, Jolly BC. Effective supervision in clinical practice settings: a literature review. *Med Educ*. 2000;34:827-40.
4. Kennedy TJ, Lingard L, Baker GR, Kitchen L, Regehr G. Clinical oversight: conceptualizing the relationship between supervision and safety. *J Gen Intern Med*. 2007;22:1080-5.
5. Kilminster S, Jolly B, Vleuten van der CPM. A framework for effective training for supervisors. *Med Teach*. 2002;24:385-9.
6. Kilminster S, Cottrell D, Grant J, Jolly B. AMEE Guide No. 27: Effective educational and clinical supervision. *Med Teach*. 2007;29:2-19.
7. Grant J, Kilminster S, Jolly B, Cottrell D. Clinical supervision of SpRs: where does it happen, when does it happen and is it effective? Specialist registrars. *Med Educ*. 2003;37:140-8.
8. Westerman M, Teunissen PW, Vleuten van der CPM et al. Understanding the transition from resident to attending physician: a transdisciplinary, qualitative study. *Acad Med*. 2010;85:1914-9.
9. Westerman M, Teunissen PW, Fokkema JPI et al. The transition to hospital consultant and the influence of preparedness, social support, and perception; a structural equation modeling approach. *Accepted for publication in Med Teach*.
10. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
11. Gibson DR, Campbell RM. Promoting effective teaching and learning: hospital consultants identify their needs. *Med Educ*. 2000;34:126-30.
12. Kanashiro J, McAleer S, Roff S. Assessing the educational environment in the operating room—a measure of resident perception at one Canadian institution. *Surgery*. 2006;139:150-8.
13. Morse JM. The Significance of Saturation. *Qualitative Health Research*. 1995;5:147-9.
14. Teunissen PW, Westerman M. Opportunity or threat; ambiguity in the consequences of transitions in medical education. *Med Educ*. 2011;45:51-9.
15. Kilminster S, Cottrell D, Grant J, Jolly B. AMEE Guide No. 27: Effective educational and clinical supervision. *Med Teach*. 2007;29:2-19.
16. Bunni S, Kelly DR. Research paradigms in medical education research. *Med Educ*. 2010;44:358-66.
17. Carter SM, Little M. Justifying knowledge, justifying method, taking action: epistemologies, methodologies, and methods in qualitative research. *Qual Health Res*. 2007;17:1316-28.
18. Larkin M, Watts S, Clifton E. Giving voice and making sense in interpretative phenomenological analysis. *Qualitative Research in Psychology*. 2006;3:102-20.
19. Smith J, Flowers P, Larkin M. *Interpretative Phenomenological Analysis. Theory, Method and Research*. London: Sage Publications Ltd; 2009.
20. Mays N, Pope C. Qualitative research in health care. Assessing quality in qualitative research. *BMJ*. 2000;320:50-2.
21. Kennedy TJ, Lingard LA. Making sense of grounded theory in medical education. *Med Educ*. 2006;40:101-8.
22. Strauss AL, Corbin J. *Basics of qualitative research*. 4 ed. Newbury Park, CA.: Sage Publications; 1991.
23. Kennedy TJ, Regehr G, Baker GR, Lingard LA. Progressive independence in clinical training: a tradition worth defending? *Acad Med*. 2005;80:106-11.
24. Dijksterhuis MC, Voorhuis M, Teunissen PW et al. Assessment of competence and progressive independence in postgraduate clinical training. *Med Educ*. 2009;43:1156-65.
25. Rudisill JR, Edwards JM. Coping with job transitions. *Consulting Psychology Journal: Practice and Research*. 2002;54:55-64.
26. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*. 1989;56:267-83.

27. *Handbook of Coping: Theory, Research, Applications*. John Wiley & Sons, Inc.; 1996.
28. Janssen O, Prins J. Goal orientations and the seeking of different types of feedback information. *Journal of Occupational & Organizational Psychology*. 2007;80:235-49.
29. Davis WD, Carson CM, Ammeter AP, Treadway DC. The Interactive Effects of Goal Orientation and Feedback Specificity on Task Performance. *Human Performance*. 2005;18:409-26.
30. VandeWalle D. A goal orientation model of feedback-seeking behavior. *Human Resource Management Review*. 2003;13:581.
31. Thomson R, Holland J. Hindsight, foresight and insight: The challenges of longitudinal qualitative research. *International Journal of Social Research Methodology*. 2003;6:233-44.

General discussion

Background

This thesis set out by reviewing the historic origins of transitions in the medical education continuum and the transition from specialist registrar to hospital consultant specifically. Furthermore, a synopsis of current empirical knowledge on this transition was presented, as well as four different perspectives on transitions derived from research within medical education, social psychology, organisational studies, and sociocultural pedagogy. This overview led to the central research questions guiding each individual research project that constitute this thesis. First, what factors in the transition to their new position are perceived as salient by new hospital consultants? Furthermore, what is the influence of preparation received through specialty training on the progression and outcome of the transition to hospital consultant? Finally, what influential contextual and psychological factors can be identified within the transition to hospital consultant? This chapter will reiterate the main findings of the individual research projects and combine them in a concluding stance and definition on the transition to hospital consultant. By doing so, the central research questions will be answered. Finally, the strengths and limitations of this thesis are discussed, as well as the practical implications for specialty training and health care, and considerations relating to future research.

Closing perspective on the transition to hospital consultant

This paragraph will present a closing stance or perspective on the transition to hospital consultant grounded in the main findings of this thesis and the four perspectives on transitions presented in chapter 1. These perspectives stem from research within medical education, social psychology, organisational studies, and sociocultural pedagogy and have reappeared throughout this thesis. The combination of the research findings and different perspectives has led to the following new definition of the transition from specialist registrar to hospital consultant.

The transition to hospital consultant is a prolonged, developmental, and social process resulting from a dialectical interplay between educational, psychological, and contextual factors.

By using this new definition as a guide for the presentation of the concluding perspective, it will be illustrated that the amalgamation of different elements from each of the different perspectives is needed in order to grasp the complex character of the transition to hospital consultant.

Educational factors

Influential educational factors in the transition to hospital consultant predominantly pertain to preparedness through specialty training. First of all, it pertains to the level of preparedness for

the required tasks, skills, and competencies needed to function proficiently as a new consultant. Secondly, it relates to preparedness of new consultants for assuming their new role in the hospital organisation with the accompanying responsibilities. The literature overview presented in chapters 1 and 2, as well as the research findings described in chapters 3 and 4 of this thesis, illustrate that new consultants report themselves adequately prepared for the clinical skills and competencies needed to function effectively. However, new consultants repeatedly reported deficiencies in their preparation for the required generic or non-clinical competencies, such as handling financial issues, management, and supervision of specialist trainees. The importance of generic competencies for a successful career like communication, leadership, and teamwork has been acknowledged within health sciences research.¹⁻³ Nevertheless, the role and position of these generic competencies is much debated within specialist registrar training programs.^{4,5} Chapter 4 however, presents indications on the actual significance of mastering these generic competencies by new hospital consultants, since a lack of preparation through specialty training seems to be associated with a more intense perceived transition and higher burnout scores among new consultants. Therefore, a sufficient level of preparedness within both clinical and generic competencies is deemed beneficial for a smooth transition to consultant.

However, as described above, preparedness through specialty training not only relates to mastering the needed skills and competencies, but also pertains to preparedness for the role change that accompanies the transition to consultant. New consultants struggle with their novel headship and having final responsibility over patient care. Especially when supervising from a distance during on call shifts. In exploring the function of preparedness for the new role, chapter 6 illustrates that new consultants who received an increasing amount of independence as specialty trainee appear to develop into their new role as supervisors more easily. Furthermore, chapter 5 demonstrates that Danish new consultants perceive themselves better prepared, experience the transition less intense, and score lower on burnout than their Dutch counterparts. This could be explained by the fact that progressive independence and participation in supervision tasks is common practise in Denmark but to a lesser extent in the Netherlands. Progressive independence is a traditional and well established key element in specialty training. However, in the past decade regulations on clinical oversight and patient safety have limited the possibilities for progressive independence in specialty training programs.^{6,7} The results presented in this thesis underpin the importance of progressive independence in specialty training by providing a better preparation for the future role of hospital consultant and the encompassing responsibilities.

In conclusion, educational factors are influential on the onset and progression of the transition process of new hospital consultants. These educational factors predominantly pertain to preparedness of new consultants through specialty training for the required generic competencies as well as preparedness for the role shift towards headship and its accompanying responsibilities.

Psychological factors

Personal attributes or psychological characteristics of the transitioning consultant have been repeatedly recognised within this thesis as influencing and directing the transition process. Several of these factors will be discussed in the following paragraph.

As illustrated in chapter 3, new consultants perceive the transition in a twofold way. Starting as a consultant is accompanied by feelings of achievement and success since it marks the completion of a long training trajectory. However, the confrontation with the multitude of new tasks and the new role within the organisation also evokes feelings of uncertainty and incompetence. Which of these feelings is predominant in the perception of the consultant can be partially explained by several psychological factors or attributes. First of all, within transition research a distinction is made between 'change' and 'transition' in which change denotes tangible discrepancies between the pre and post state and transition represents the psychological processes evoked within the individual in response to that change.^{8,9} Therefore, the same change might result in divergent transition processes of individuals due to differences in their perceptions. This can be partially clarified by psychological concepts like coping strategies and goal orientation.

The first psychological concept that provides insight into the different progression of the transition to consultant is that of coping strategies. The American psychologist Richard Lazarus introduced the concept of coping and coping strategies in 1966¹⁰ by drawing from Freud's work on defence and repression and Anna Freud's *Das Ich und die Abwehrmechanismen* published in 1936.¹¹ Nowadays, varying definitions of coping exist, but all emphasize coping as intentional activity and behaviour directed towards human adaptation in response to a stressor.^{12,13} Coping strategies can be roughly divided into problem or task oriented coping versus emotion oriented coping.¹⁴ Problem oriented coping consists of behaviour aimed at actively changing the situation and stressor. Contrastingly, emotion oriented coping strategies aim to reduce experienced emotions and stress resulting from the problem at hand instead of altering the situation itself. Examples are blaming one self for not performing proficiently, avoiding difficult situations, and sharing difficulties with friends or family. Problem oriented coping has been recognised as effective for personal development whereas emotion oriented coping often results in the continuation of personal discomfort.¹⁵ These notions support the finding from both qualitative studies described in chapters 3 and 6 of this thesis. Both studies identified proactive behaviour like actively pursuing feedback on performance, discussion of occurring incidents, consulting experienced fellow consultants to identify expectations, and being acquainted with the specialty trainee prior to supervision, as effective problem oriented coping strategies in the transition to new consultant. Contrastingly, emotion oriented coping of new consultants, like solely sharing emotions with spouses or peers in order to overcome feelings of incompetence appeared to be counterproductive in the development of new consultants.

The concept of goal orientation is a second psychological concept, which aids a deeper understanding of the transition process and appears to be influential on the development of new consultants in transition. Goal orientation relates to the motives and rationale of an individual to deploy feedback seeking behaviour and distinguishes a learning goal from a performance goal orientation.¹⁶ The first is the extent to which an individual seeks information and feedback in order to learn and develop, whereas the latter denotes the extent to which an individual seeks to demonstrate competence for the purpose of gaining favourable judgments of others.^{17,18} As described in chapter 6 and to some extent in chapter 3, some new consultants actively pursue feedback and information in order to learn and develop. Contrastingly, others refrain from seeking feedback because they hold the opinion that they are expected to be competent and are unwilling to share their struggle, insecurity or incompetence. These two identified strategies of new consultants might be attributed to a learning goal versus performance goal orientation and provide further insight into why one consultant actively seeks feedback upon performance where others do not.

In conclusion, the development of transitioning new consultants is influenced by several personal or psychological factors. Effective coping strategies and a learning goal orientation have been recognised in this thesis as facilitators of the personal and professional development of new consultants in transition. Through adaptation to or assimilation of the novel tasks and the changed role new consultants are confronted with.

Contextual factors

Besides educational and psychological factors, several contextual factors surfaced in this thesis as influential on the transition to consultant. Alongside the confrontation with novel tasks and a new role, new consultants often face other life events like geographic relocation or finding a new home and new schools for their foremost young children. These changes in itself have been acknowledged as significant life events and stressors for any individual¹⁹ and are now concurrent with the intense phase of transitioning into independent practise as a hospital consultant. Therefore, the contextual factors add to the intensity of the transition process. Besides contextual disruptions within the individual life space of new consultants, contextual factors in the transition also pertain to characteristics of the new consultancy post it self. Chapters 3 and 6 identified that being unfamiliar with the context, i.e. new department, its patient logistics, technical equipment, and specialist trainees is detrimental for new consultants and their adaptation to their new post. Therefore, a swift familiarisation with that context is important for a smooth development of new consultants in their transition. As a result, chapters 3 and 6 address the importance of sound socialisation programs for new consultants.

Furthermore, being familiar with the patient population and their most relevant clinical conditions facilitates the transition. This concrete aspect is touched upon in chapter 6 but deserves further

consideration. The extent to which the patient population exposed to during specialty training and the current patient population of the consultancy post resembles each other seems important. On several occasions participating new consultants identified that they received their subspecialty training like haematology in an academic centre with only highly specialised patient care for rare conditions. However, their current consultant post is situated in a regional general hospital where patients are diagnosed with common hematologic conditions to which they have been sparsely exposed to during specialty training. As a result, these new consultants are well equipped for highly specialised academic care but report being underprepared for treating ordinary hematologic conditions that constitute the bulk of haematology in their current post. Therefore, contextual factors regarding patient populations and characteristics thereof also play a role within the transition.

The comparison between Denmark and the Netherlands described in chapter 5 illustrates that Danish new consultants experience their transition less stressful than their Dutch colleagues and score lower on burnout. Besides differences in specialty training programs that might contribute to these differences, regulations concerning working hours, as well as cultural characteristics were identified as possible explanations for these differences. First of all, in Denmark, working hours are limited to 37 hours a week compared to 48 hours in the Netherlands. Literature points out that longer working hours are associated with an impairment of the work-life balance²⁰, higher stress levels, reduced job satisfaction, and burnout in specialty trainees and hospital consultants.^{21,22} This impairment of the work-life balance due to longer working hours adds to stress already related to the transition to consultant. Since many new consultants already struggle with their work-life balance due to having young families with accompanying responsibilities such as finding suitable day-care facilities and schools and is described in chapter 3. Furthermore, chapter 5 investigates the influence of cultural characteristics on the transition to hospital consultant. The sociologist Hofstede developed cultural dimensions that are widely adopted in international comparisons of organisational settings, including those in medical education.²³ Denmark scores lower on Hofstede's Power Distance Index implying that in Denmark it is more common for decisions to be made in a communal setting and individual decisions are commonly questioned and discussed by other team members.^{24,25} Dutch consultants, on the other hand, are generally not accustomed to a culture of shared decision-making and may therefore experience a stronger sense of individual responsibility, causing them to perceive the transition as more stressful due to the huge increase in new tasks and responsibilities. The importance of this sense of kinship in decision making and relationship with fellow consultants is also illustrated by the final prominent contextual factor, being social support. Social support surfaced several times and is described in chapters 3, 6, and more in-depth in chapter 4. Chapter 4 illustrates that received social support from colleagues and family is negatively correlated with burnout among new consultants and diminishes the experienced intensity of the transition. This protective effect of social support in the transition is underpinned by research on burnout in general.^{26,27}

In conclusion, the transition to consultant appears to be affected by multiple contextual aspects, ranging from characteristics concerning specialty training programs to health care organisation, working hour regulations, cultural characteristics, received social support, and familiarity with the new context.

The transition as prolonged and developmental process

Throughout this thesis the transition to consultant has been approached, in accordance with the psychologist Nicholson, as a period of adjustment rather than a single moment, in which individuals experience some form of discontinuity in their (professional) life.²⁸ This experienced discontinuity forces them to respond by developing new behaviours or changing their (professional) environment in order to cope with the new situation.²⁹ Such a longitudinal approach to transitions is however not refrained to psychology research. Within pedagogy transitions are approached as longitudinal and developmental processes as well. Piaget for instance in his investigation of child development, introduced the concept of 'cognitive disequilibrium' in which a child encounters new and unfamiliar experiences prompting new directions of thought and development.^{30,31} In accordance with this longitudinal oriented approach on transitions, psychiatrists Wilkie and Raffaelli state that the transition to consultant involves a fundamental re-examination of who and what we are, even if this appears at an largely unconscious level.³² The findings presented in this thesis underpin this view on transitions with its explicit attention for its prolonged and longitudinal character. For instance, as reported in chapter 3, new consultants experienced that it takes over a year before a state of equilibrium is reached.

Although transitions are acknowledged as prolonged processes in the field of medical education, transitions are rarely approached as opportunities for personal and professional development as is the case within transition psychology or life course sociology.^{8,33} Chapters 1 and 2 illustrate that whereas in the latter research field human development is inextricably bound with transitions, medical education often depicts transitions as intense and stressful stages or unwanted interruptions of the educational continuum³⁴ which should be avoided. More specifically, medical education research predominantly postulates transitions as intense and stressful phases due to lack of preparation for the next stage within the medical trajectory. In response, most formulated interventions and curriculum alterations strive to better prepare students and trainees by means of introducing vertical integrated curricula or transition courses.³⁵⁻⁴¹ These interventions result from the wide-held view that a better alignment between content of training and the next phase of the medical career could facilitate or even prevent an intense transition.⁴² Undoubtedly, medical training should optimally prepare students and trainees for their future careers. This is also illustrated by the findings in chapter 4 where deficiencies in preparation for generic competencies were found to be associated with higher burnout scores among new hospital consultants. However, even if trainees are perfectly prepared for all needed skills and knowledge,

transitions are likely to remain daunting stages within the medical trajectory. This is caused by the fact that transitions not only represent phases in which individuals are confronted with new tasks and accompanying skills, but also represent stages in which a new role within the organisation has to be acquired and new social interactions and relations are shaped. Therefore, medical education should not solely strive to eliminate transitions from the medical continuum since this is likely to be a utopia. Furthermore, when the ultimate goal is the prevention of transitions, valuable opportunities for rapid personal development are ignored. Therefore, it should be mentioned and warmly welcomed, that in contrast to the majority of medical education papers on transitions, two recent papers position transitions as critical intensive learning periods instead of undesired interruptions of the medical career.^{43,44} Possibly, medical training programs are more likely to succeed in delivering well equipped new consultants who will progress into independent practise smoothly by wielding this developmental approach on transitions and aiming at empowerment and preparation of specialty trainees for handling of and coping with transitions, their challenges and presenting opportunities. This approach could enable a more smooth progression of new consultants in transition, thereby reducing the perceived intensity and burnout among new consultants. Since this undoubtedly remains an important goal of specialty training besides providing a sound preparation for the needed medical and generic competencies.

The transition as social process

At the core of the prolonged and developmental process of the transition to hospital consultant are the social processes that colour it. The acknowledgement of transitions as social processes stems from the field of organisational socialisation research. Organisational socialisation research, stemming from the work of van Maanen and Schein in the seventies,⁴⁵ investigates both the content and process of learning through which newcomers develop into a new role or position within an organisation.^{46,47}

Building on this Morrison *et al.*^{48,49} identified newcomers as active pursuers of information in order to develop themselves within four specific domains: task mastery, role clarification, acculturation, and social integration. These domains feature prominently in chapters 2, 3 and 6 of this thesis and in other literature on the transition to hospital consultant.⁴² Besides mastering their new tasks, new consultants struggle with clarifying their new role in the organisation and establishing meaningful relationships with fellow consultants and other co-workers. This forging of new relationships with colleagues and co-workers is essential for reducing role uncertainty of the newcomer and therefore facilitates integration and socialisation.⁵⁰⁻⁵³ This socialisation process is also described in the famous ethnographic work "Boys in white: Student Culture in Medical School".⁵⁴ In this work Becker *et al.* describe medical students transitioning into clinical practise and their search for existing expectations, which they try to identify by establishing meaningful relationships with consultants and nurses. Finally, the favourable effect of received social support

from colleagues and family on transitioning consultants, as described in the paragraph on contextual factors above, illustrates the social nature of the transition process towards hospital consultant.

Conclusions

This concluding perspective on the transition to hospital consultant combines the research findings of this thesis with elements derived from different perspectives on transitions. Merging these different strands of information provides deeper understanding of transitions as an intricate stage within the medical trajectory, and provides answers to the central research questions of this thesis. By using several theoretical stances it is illustrated that the preparation for, progression through and outcome of the transition to consultant results from a complex interplay between educational, psychological, and contextual factors situated in a prolonged and developmental social process. A plea is held to approach transitions in medical education as opportunities for personal development rather than undesired interruptions of the medical career that can be averted, solely by providing better preparation.

Strengths and limitations

The strengths of this thesis relate to its relevance, methodological variety, the inclusion of consultants from various specialties, and the incorporation of relevant theoretical concepts stemming from research fields outside medical education.

Specialty training is confronted with a plethora of novelties and changes, or put differently, is situated within a transition itself. In order to meet the requirements imposed on consultants by society nowadays, competency based specialty training programs have been introduced worldwide in the last decade.⁵⁵⁻⁵⁸ As a result, an in depth understanding of the current efficacy of specialty training programs and the preparation provided to new consultants is required. One way to investigate the merits and failings of specialty training programs is to examine the transition from specialty training to starting as a hospital consultant, since it enables the investigation of the main question, are new consultants well prepared for their actual work? However, in order to properly investigate this question a better understanding of all facets of this transition was needed. This thesis adds to that needed clarification⁵⁹ of different factors present in this transition and so adds to understanding this stage of the medical trajectory.

The methodological variety displayed throughout this thesis adds to its scientific rigour. The validity of the closing perspective described above is further strengthened by the triangulation of the outcomes of the individual chapters. Chapters 1 and 2 reviewed existing literature in

the medical education domain as well as literature stemming from adjacent research fields. Furthermore, the qualitative studies in chapters 3 and 6 explored in depth different areas of interest within the transition. Chapter 3 describes a cross sectional retrospective qualitative study guided by a grounded theory approach⁶⁰ whereas chapter 6 concerns a prospective longitudinal research project based on an interpretative phenomenological design.⁶¹ In contrast to these qualitative explorative studies, chapter 4 and 5 describe two population based survey studies among consultants within all clinical specialties in both the Netherlands and Denmark. This inclusion of perspectives from consultants from all clinical specialties in both the Netherlands and abroad, answers to the plea held by Higgins *et al.*⁶² for empirical research with a wider scope than local or specialty specific boundaries. Furthermore, chapter 4 investigated whether several hypothesized associations were correct by performing a structural equation modelling analysis⁶³ on data derived from Dutch consultants from a three-year cohort. This design in which both observations were made and hypotheses were tested, resonates with Bourdieu's observation on scientific research in which he states that 'every act of research is simultaneously empirical (it confronts the world of observable phenomena) and theoretical since it necessarily engages hypotheses about the underlying structure of relations that observations are designed to capture.'⁶⁴ Finally, the international comparison on the transition presented in chapter 5 offers unique insight into the possible influences of contextual factors in the transition and adds to the transferability of the findings.

A third and final strength of this thesis concerns the incorporation of theoretical concepts and insights derived from adjacent research fields. Throughout this thesis various concepts stemming from psychology, sociology, and pedagogy research have aided the understanding and illumination of the research findings. This echoes Glaser's view in that 'incorporation of unrelated literature findings keeps up the researchers' continual theoretical sensitivity to conceptualisation and theorizing of data.'⁶⁰ This integration of existing theoretical concepts adds to the validity and significance of the observations and findings within this thesis and propels the understanding of the processes at hand. This approach answers to the appeal within medical education research, for the incorporation of conceptual frameworks or theories in both research designs as well as in the interpretation of results.^{65,66}

The limitations of this thesis pertain to the transferability of its research findings and potential confounders or sources of bias. Although several studies within this thesis included new consultants' perceptions from all clinical disciplines, the transferability of the research findings remains a limitation. All but one project was conducted solely in the Netherlands with its specific medical training trajectory different to other settings. These differences in training trajectories could result in dissimilar transitions worldwide due to dissimilar educational factors. Furthermore, chapter 5 illustrates contextual factors like cultural dimensions and working

conditions as potential influences on the transition. Obviously, these factors differ worldwide and the validity and applicability of these research findings in other settings can therefore be claimed only reticently.

Several factors might have biased the findings described in this thesis. Firstly, all data were based on the perception and self-assessment of new consultants. This could have biased the findings of particularly chapters 4 and 5, concerning new consultants' preparedness levels for practise. Since, it is known that in self assessment of competence individuals tend to either overestimate or underscore their own level of competence.^{67,68} The main goal of these research projects was, however, to gain insight into the transition process and not to be descriptive in nature on levels of competence. Therefore, the results on preparedness for practise provide insight into the transition process, but should not be adopted blindly in daily practise. Also, the involvement of perspectives of new consultants' co-workers, such as fellow consultants, specialty trainees, or nurses, could have resulted in additional insight into the transition. However, this would have added to the complexity of the sometimes already multifaceted research designs and hampered the investigation of the 'lived experiences' ⁶¹ of personal perceptions of new consultants in transition.

The relative low response rates in both survey studies described in chapters 4 and 5 could be indicated as another potential source of bias due to non response. These limitations are addressed in detail within the individual chapters. Since both studies were population based and resulted in large enough sample sizes after power analysis and aimed to investigate and understand the transition process rather than to be descriptive of nature, it could be concluded that these lower response rates did not result in insurmountable limitations. Furthermore, literature illustrates that the association between non response and non response bias in survey studies is often absent. ⁶⁹

Practical implications

As described above, medical education and health care could benefit from approaching transitions as learning opportunities rather than undesired interruptions. New consultants in transition face numerous challenges and need to acquire new skills and competencies and adapt rapidly to the new situation. However, due to deficiencies in preparation, ineffective coping strategies, or lack of social support, consultants are at risk for developing burnout. Obviously, in the case of burnout, the opportunity for personal development is not seized optimally. Even more, the detrimental effects of physician burnout on the quality of patient care should not be ignored.^{70,71} In order to facilitate the progression of new consultants through their transition and to swivel the transition from a threat to an opportunity, several measures will be presented subsequently. These practical implications for the organisation of both specialty training and health care pertain to the identified domains of educational, psychological and contextual factors.

First of all, specialty training programmes should aim to achieve a higher level of preparedness for the generic competencies needed by new consultants, and further incorporation of progressive independence in specialty training programmes. Chapters 3, 4, and 5 illustrate that new consultants report themselves underprepared for the generic competencies needed for an adequately fulfilment of their posts. As new consultants stated 'I have been trained for just 50% of the work I am supposed to do' or 'I have been trained as a medical doctor, but have become an entrepreneur as well'. The shift to competency-based postgraduate curricula in the Netherlands ^{57,72}, the United States of America ⁴ and Canada ⁵ resulted from the aim to better align the content of training programs to contemporary societal needs. Postgraduate training thereby strives to better equip consultants within generic competencies like collaboration, leadership and management. However, establishing a better preparation for these generic competencies appears not to be an easy assignment, due to difficulties with the translation of this training to daily practise.⁷³ In addition, current regulations on the restriction of working hours for trainees are often positioned as detrimental for health care quality and as obstacles for additional courses and training within generic competencies. Although these statements are in contradiction with the research findings from the comparison between the Netherlands and Denmark as presented in chapter 5 and that evidence supporting these statements is lacking.^{21,74} Furthermore, the findings of this thesis repeatedly emphasize the significance of new consultants being prepared for the generic competencies. Therefore, additional training in generic competencies should be implemented in specialty training programs. Preferably, this additional training should not consist of a short one- or two-day course without follow up in daily practise of specialty training, where the trainee is only required to clinically manage a ward or outpatient clinic. Rather, this training within leadership, collaboration or management should lead up to progressive independence of specialty trainees thereby facilitating the further development and deployment of the newly acquired skills and generic competencies. Progressive independence of specialty trainees is touched upon in chapters 5 and 6 and appears to smooth the transition to hospital consultant by facilitating a higher level of preparedness of new consultants within specific tasks like supervision during on call shifts. Furthermore, progressive independence enables the exposure to more existential elements in force within the transition to hospital consultant. Elements such as handling increased responsibility in patient care, and adaptation to the future shift to headship and its accompanying responsibilities. However, we acknowledge the legal and educational issues accompanying progressive independence in specialty training that complicate the actual practise and employment of this educational concept.

These proposed implications for educational practise and specialty training mainly aim to better align the content of training with actual practise as a consultant, thereby easing the transition process. However, in addition to these implications several other measures can be formulated. Specialty training could benefit from empowering trainees for handling the

challenges encompassing the transition to consultant. Through training and coaching, trainees could be prepared for the different challenges that lie ahead, and be made aware of their own coping strategies, goal orientation and feedback seeking behaviour and the efficacy thereof. Furthermore, coaching programmes or structured intervision groups could promote senior registrars' development of the needed generic competencies like collaboration, leadership, and management. Also the fostering of coaching, mentoring, or peer support groups could aid new consultants in coming to grips with their new post and role.⁷⁵ Through supported reflection on performance new consultants can identify and pursue strategies for personal development, which aids the progression through the transition and potentially diminish its intensity and stressfulness. Furthermore, the development of these strategies could possibly result in effective tools that aid life long learning and continuous professional development.

Finally, this thesis identified hospital organisations, peers, and colleagues of new consultants as influential within the transition. These co-workers ought to be aware of their possibilities to aid the settling in of new consultants. Hospital organisations and departments should institute sound socialisation programs in order to familiarise new consultants with the organisational structure, culture, its employees, and the new role new consultants are about to adopt. Furthermore, new consultants themselves should acknowledge the importance of being acquainted with relevant co-workers prior to specific tasks such as supervision during on call shifts, and should deploy actions to guarantee this. Finally, chapters 3, 4 and 6 all identified the importance of received social support within the transition to consultant. New consultants' colleagues and peers must recognise their own importance within the socialisation process by questioning the well being of their new colleague, providing support, and offering easy access to consultation.

Future research

The findings presented in this thesis, as well as the closing perspective and practical implications yield numerous possibilities for future research. Several of these possibilities have already been presented in the individual chapters. Therefore, this thesis will not end by echoing these, but by proposing additional research possibilities on the transition to consultant and transitions in general in stead. Hopefully these directions will resonate with future projects and researchers.

The positioning of the transition to hospital consultant and transitions in general as developmental process and learning opportunities warrants further investigation. Firstly, this thesis provides an in-depth understanding of this intricate process and has identified influential factors within. However, future research should strive to further clarify how new consultants can optimally use the transition as learning opportunity. Also, future research should investigate how specialty training programs can be best arranged to optimally empower its trainees with effective learning

and coping strategies, so they will be able to handle and learn from the challenging situations during the transition. Framing transitions as learning periods is therefore likely to be a fertile area for future research.⁴³

The research projects presented within this thesis covered the domains of influential factors, e.g. educational, psychological, and contextual, within the transition individually. Subsequently, the closing perspective illustrated that these domains are interrelated. However, the precise interconnectedness in daily practise of new consultants in transition necessitates further investigation and entails the second direction for future research. The three domains of factors result from three different entities. The individual consultant harbours the psychological factors; the specialty training program pertains to the educational factors; and the new department constitutes the contextual factors. Activity theory analysis offers a framework for the investigation of how individuals are attempting to bring about change in order to reach a goal whilst situated in a complex social system, and how this process is influenced by rules, contextual characteristics and other artifacts.⁷⁶ This kind of approach could provide more insight into the interrelatedness of these domains and entities thereby aiding the understanding of this stage.

Besides these theoretical oriented areas of future research, several other interesting research projects can be distilled from this thesis. First of all, it could be investigated whether the implementation of competency based curricula with specific attention for the generic competencies actually result in new consultants reporting higher levels of preparedness in the future. Secondly, it could be worthwhile to follow up on the new consultants that participated in the different research projects of this thesis. This could propel the insight into whether the consultants' transition phase and their actual practise and expertise in, for instance five years, are linked or not. More specifically, research could explore whether differences in supervision styles of more senior consultants can be traced back to their preparation and transition period. Furthermore, the effects of the contextual factors like social support and working hour regulations appear to be interesting future research topics, as well as the effect of the proposed practical implications.

This thesis contributed to the academic knowledge on the transition to consultant by linking new observations to established theoretical concepts. However, research into this transition and transitions in general in the medical trajectory still provides ample opportunity for further research. Hopefully, future research will build on these research findings and so continues to explore this intricate stage within the medical career. Or as Selye articulated: 'it is not to see something first, but to establish solid connections between the previously known and the hitherto unknown that constitutes the essence of specific discovery'.⁷⁷

References

1. Semeijn JH, Velden van der R, Heijke H, Vleuten van der C, Boshuizen HPA. Competence indicators in academic education and early labour market success of graduates in health sciences. *Journal of Education and Work*. 2006;19:383-413.
2. Semeijn JH. *Academic Competencies and Labour Market Entry studies among Dutch graduates*. Maastricht, the Netherlands: ROA, 2005.
3. Meng C. *Discipline-Specific or Academic? Acquisition, Role and Value of Higher Education Competencies*. Maastricht, the Netherlands: ROA, 2005.
4. Swing SR. The ACGME outcome project: retrospective and prospective. *Med Teach*. 2007;29:648-54.
5. Frank JR, Danoff D. The CanMEDS initiative: implementing an outcomes-based framework of physician competencies. *Med Teach*. 2007;29:642-7.
6. Dijksterhuis MG, Voorhuis M, Teunissen PW et al. Assessment of competence and progressive independence in postgraduate clinical training. *Med Educ*. 2009;43:1156-65.
7. Kennedy TJ, Regehr G, Baker GR, Lingard LA. Progressive independence in clinical training: a tradition worth defending? *Acad Med*. 2005;80:S106-11.
8. Adams J, Hayes J, Hopson B. *Transition, understanding & managing personal change*. London: Martin Robertson & Company; 1976.
9. Brett JM. job transitions and personal and role development. *Res pers hum resour manage*. 1984;2:155-85.
10. Lazarus R.S. *Psychological Stress and the Coping Process*. New York: McGraw-Hill; 1966.
11. Parker JDA, Endler NS. Coping and Defense: A Historical Overview. In: Zeidner M, Endler NS, eds. *Handbook of Coping: Theory, Research, Applications*. John Wiley & Sons, Inc.; 1996:3-24.
12. Rudisill JR, Edwards JM. Coping with job transitions. *Consulting Psychology Journal: Practice and Research*. 2002;54:55-64.
13. Pearlman LI, Schooler C. The structure of coping. *J Health Soc Behav*. 1978;19:2-21.
14. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*. 1989;56:267-83.
15. *Handbook of Coping: Theory, Research, Applications*. John Wiley & Sons, Inc.; 1996.
16. Janssen O, Prins J. Goal orientations and the seeking of different types of feedback information. *Journal of Occupational & Organizational Psychology*. 2007;80:235-49.
17. Davis WD, Carson CM, Ammeter AP, Treadway DC. The Interactive Effects of Goal Orientation and Feedback Specificity on Task Performance. *Human Performance*. 2005;18:409-26.
18. VandeWalle D. A goal orientation model of feedback-seeking behavior. *Human Resource Management Review*. 2003;13:581.
19. Holmes TH, Rahe RH. The social readjustment rating scale. *J Psychosom Res*. 1967;11:213-8.
20. Keeton K, Fenner DE, Johnson TR, Hayward RA. Predictors of physician career satisfaction, work-life balance, and burnout. *Obstet Gynecol*. 2007;109:949-55.
21. Fletcher KE, Underwood W, III, Davis SQ, Mangrulkar RS, McMahon LF, Saint S. Effects of work hour reduction on residents' lives: a systematic review. *JAMA*. 2005;294:1088-100.
22. Balch CM, Shanafelt TD, Dyrbye L et al. Surgeon distress as calibrated by hours worked and nights on call. *J Am Coll Surg*. 2010;211:609-19.
23. Jippes M, Majoor G. Influence of national culture on the adoption of integrated medical curricula. *Advances in Health Sciences Education*. 2011;16:5-16.
24. Hofstede G. *Culture's consequences: International differences in work-related values*. London: Sage Publications; 1980.
25. Hofstede G. *Culture's consequences. Comparing values, behaviors, institutions, and organizations across nations*. New York: Sage Publications; 2001.
26. Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of job burnout. *J Appl Psychol*. 1996;81:123-33.
27. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001;52:397-422.

28. Nicholson N. The transition cycle: causes, outcomes, processes and forms. In: Fisher S, Cooper CL, eds. *On the move: the psychology of change and transition*. New York: John Wiley & Sons inc; 1990:83-108.
29. Nicholson N. A theory of work role transitions. *Adm sci q*. 1984;29:172-91.
30. Piaget J. *The Equilibration of Cognitive Structures: The Central Problem of Intellectual Development*. Chicago: University of Chicago Press; 1984.
31. Piaget J. *The psychology of intelligence*. London: Routledge; 1950.
32. Wilkie G, Raffaelli D. In the deep and: making the transition from SpR to consultant. *Advances in Psychiatric Treatment*. 2005;11:107-14.
33. George LK. Sociological perspectives on life transitions. *Annu Rev Sociol*. 1993;19:353-73.
34. Molenaar WM, Zanting A, van Beukelen P et al. A framework of teaching competencies across the medical education continuum. *Med Teach*. 2009;31:390-6.
35. Jacobs JC, Bolhuis S, Bulte JA, Laan R, Holdrinet RS. Starting learning in medical practice: an evaluation of a new introductory clerkship. *Med Teach*. 2005;27:408-14.
36. Cave J, Woolf K, Jones A, Dacre J. Easing the transition from student to doctor: how can medical schools help prepare their graduates for starting work? *Med Teach*. 2009;31:403-8.
37. Chittenden EH, Henry D, Saxena V, Loeser H, O'Sullivan PS. Transitional clerkship: an experiential course based on workplace learning theory. *Acad Med*. 2009;84:872-6.
38. O'Brien BC, Poncelet AN. Transition to clerkship courses: preparing students to enter the workplace. *Acad Med*. 2010;85:1862-9.
39. Poncelet A, O'Brien B. Preparing medical students for clerkships: a descriptive analysis of transition courses. *Acad Med*. 2008;83:444-51.
40. Wijnen-Meijer M, Ten Cate OT, van der SM, Borleffs JC. Vertical integration in medical school: effect on the transition to postgraduate training. *Med Educ*. 2010;44:272-9.
41. Wijnen-Meijer M, Ten Cate OT, Rademakers JJ, van der SM, Borleffs JC. The influence of a vertically integrated curriculum on the transition to postgraduate training. *Med Teach*. 2009;31:e528-32.
42. Brown J, Ryland I, Shaw N, Graham D. Working as a newly appointed consultant: a study into the transition from specialist registrar. *Br J Hosp Med (Lond)*. 2009;70:410-4.
43. Kilminster S, Zukas M, Quinton N, Roberts T. Preparedness is not enough: understanding transitions as critically intensive learning periods. *Medical Education*. 2011;45:1006-15.
44. Kilminster S, Zukas M, Quinton N, Roberts T. Learning practice? Exploring the links between transitions and medical performance. *J Health Organ Manag*. 2010;24:556-70.
45. Maanen van J, Schein EH. Toward a theory of organizational socialization. *Res Organ Behav*. 1979;1:209-64.
46. Cooper-Thomas HD, Anderson N. Organizational socialization A new theoretical model and recommendations for future research and HRM practices in organizations. *Journal of Managerial Psychology*. 2006;21:492-516.
47. Chao GT, O'Leary-Kelly AM, Wolf S, Klein HJ, Gardner PD. Organizational Socialization: Its content and consequences. *J Appl Psychol*. 1994;79:730-43.
48. Morrison EW. Longitudinal study of the effects of information seeking on newcomer socialization. *J Appl Psychol*. 1993;78:173-83.
49. Kammeyer-Mueller JD, Wanberg CR. Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology*. 2003;88:779-94.
50. Feldman DC. A contingency theory of socialization. *Adm sci q*. 1976;21:433-52.
51. Yellin LL. Role Acquisition as a Social Process. *Sociological Inquiry*. 1999;69:236-56.
52. Morrison EW. Newcomers' relationships: the role of social network ties during socialization. *Acad Manage J*. 2002;45:1149-60.
53. Fang R, Duffy MK, Shaw JD. The Organizational Socialization Process: Review and Development of a Social Capital Model. *Journal of Management*. 2011;37:127-52.
54. Becker HS, Blanche G, Hughes EC, Strauss AL. *Boys in White: Student Culture in Medical School*. Chicago: University of Chicago Press; 1961.
55. Leung WC. Competency based medical training: review. *BMJ*. 2002;325:693-6.
56. Harden RM. Outcome-Based Education: the future is today. *Med Teach*. 2007;29:625-9.

57. Scheele F, Teunissen P, Van Luijk S et al. Introducing competency-based postgraduate medical education in the Netherlands. *Med Teach*. 2008;30:248-53.
58. Weinberger SE, Pereira AG, Iobst WF, Mechaber AJ, Bronze MS. Competency-based education and training in internal medicine. *Ann Intern Med*. 2010;153:751-6.
59. Cook DA, Bordage G, Schmidt HG. Description, justification and clarification: a framework for classifying the purposes of research in medical education. *Med Educ*. 2008;42:128-33.
60. Glaser BG. *Emergence vs Forcing: Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press; 1992.
61. Smith J, Flowers P, Larkin M. *Interpretative Phenomenological Analysis. Theory, Method and Research*. London: Sage Publications Ltd; 2009.
62. Higgins R, Gallen D, Whiteman S. Meeting the non-clinical education and training needs of new consultants. *Postgrad Med J*. 2005;81:519-23.
63. Violato C, Hecker KG. How to use structural equation modeling in medical education research: a brief guide. *Teach Learn Med*. 2007;19:362-71.
64. Bourdieu P, Wacquant L. *An Invitation to Reflexive Sociology*. Chicago: The University of Chicago Press; 1992.
65. Bordage G. Conceptual frameworks to illuminate and magnify. *Med Educ*. 2009;43:312-9.
66. Albert M, Hodges B, Regehr G. Research in medical education: balancing service and science. *Adv Health Sci Educ Theory Pract*. 2007;12:103-15.
67. Eva KW, Regehr G. "I'll never play professional football" and other fallacies of self-assessment. *J Contin Educ Health Prof*. 2008;28:14-9.
68. Eva KW, Cunningham JP, Reiter HI, Keane DR, Norman GR. How can I know what I don't know? Poor self assessment in a well-defined domain. *Adv Health Sci Educ Theory Pract*. 2004;9:211-24.
69. Groves RM. Nonresponse Rates and Nonresponse Bias in Household Surveys. *Public Opinion Quarterly*. 2006;70:646-75.
70. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med*. 2002;136:358-67.
71. West CP, Huschka MM, Novotny PJ et al. Association of perceived medical errors with resident distress and empathy: a prospective longitudinal study. *JAMA*. 2006;296:1071-8.
72. Ten Cate TO. Medical education in The Netherlands. *Med Teach*. 2007;29:752-7.
73. Scheele F. The story of health care's Achilles' heel. *Med Teach*. 2011;33:578-9.
74. Waurick R, Weber T, Broking K, Van AH. The European Working Time Directive: effect on education and clinical care. *Curr Opin Anaesthesiol*. 2007;20:576-9.
75. Roberts G, Moore B, Coles C. mentoring for newly appointed consultant psychiatrists. *Psychiatric Bulletin*. 2002;26:106-9.
76. Engstrom Y. Expansive Learning at Work: toward an activity theoretical reconceptualization. *Journal of Education & Work*. 2001;14:133-56.
77. Selye H. *The stress of life*. New York, NY US: McGraw-Hill; 1956.

7

Summary

After graduating from medical school, most students venture into one of the postgraduate training programmes that will, after completion, allow them to practise as independent medical specialists. Postgraduate training in the Netherlands ranges from three to six years, depending on the specialty. As a result of this construction, trainees will have received nine to twelve years of training prior to starting as a hospital consultant. Starting to practise as a hospital consultant, or in other words, the transition from specialist registrar to hospital consultant forms the central topic of this thesis.

Chapter 1 first describes the history of transitions within the medical education continuum, after which an overview of the literature on the transition to hospital consultant is provided. In addition to this overview from the field of medical education research, alternative approaches to transitions are presented, stemming from related research areas within social psychology, organisational studies and pedagogy. Transition processes reflect both an individual's previous development and current challenges. This makes transitions a lens for the merits and failings of the current medical educational system. The presentation of contemporary empirical knowledge and of other perspectives on transitions leads up to the central research questions of this thesis. Firstly, what factors in the transition to new hospital consultant are perceived as salient by doctors? Also, what is the influence of preparation received through specialty training on the progression and outcome of the transition to hospital consultant? And finally, what influential contextual and psychological factors can be identified within the transition to hospital consultant?

Chapter 2 describes a critical synthesis of the medical education literature on transitions and their role in the development of medical doctors. Six leading medical education journals were searched to identify how medical educators currently conceptualise transitions. Research on the three major transitions within the trajectory of becoming a specialist is described and categorised as representing objectifying, clarifying, or descriptive and/or justifying research. The first transition from preclinical to clinical training in medical school is reviewed. In this transition students need to relearn what they thought they had already learned in preclinical training and they must learn new things in a more self-directed way. The second transition from medical student to specialist trainee mainly involves handling the many responsibilities that accompany the delivery of patient care, while simultaneously learning from the process of providing that care. The final major transition, from specialty training to working as a hospital consultant, introduces novel non-clinical tasks as well as decisions on how to delegate responsibilities as main issues. This chapter illustrates that all transitions can be highly demanding stages within a medical career and are characterised by numerous challenging novelties. Also, it illustrates that transitions are currently viewed as undesired and potential harmful interruptions of the medical career and should be avoided. Furthermore, chapter 1 shows that clarifying studies often lack conceptual frameworks that could help to gain deeper insight into the observed phenomena. Research from the field of

psychology offers such valuable theoretical perspectives that are applicable to medical education transitions. The chapter illustrates that in order to help transform transitions from threats to learning opportunities, medical education should assist students and doctors in developing the coping skills they need to effectively deal with the challenges presented by new environments.

Chapter 3 reports on an exploratory qualitative study that retrospectively investigates the question: are new consultants adequately prepared and trained to perform the tasks and duties of their new position? Semi-structured individual interviews were conducted with a total of 14 new consultants in Internal Medicine and Obstetrics and Gynaecology. The study was guided by a grounded theory approach and resulted in a conceptual framework on the transition to hospital consultant. The framework consists of three themes interacting in a longitudinal process and is underpinned by notions from organisational socialization literature and psychology. New consultants are confronted with a plethora of novel disruptive elements (first theme) like new tasks related to supervision, management, and handling financial issues, as well as. Furthermore, the novel disruptive elements consist of an altered role in the organisation and an unfamiliar context. The effects of these novelties appeared to depend on the new consultant's perception and coping strategies (second theme). These perceptions and strategies in their turn seemed to steer the personal development and outcome (third theme) of the new consultant in transition. The conceptual framework developed in this chapter provides insight into the transition from specialty training to working as a hospital consultant and can inform measures to smooth the intense transition.

Chapter 4 represents a population based survey study conducted among all new Dutch hospital consultants from the cohort 2007-2009 ($n = 2643$). This chapter investigates whether preparedness regarding medical and generic competencies, perceived intensity, and social support are associated with burnout of new consultants in transition. A questionnaire was used, which covered preparedness for practise, intensity of the transition, social support, and burnout. Using a structural equation modelling approach the hypothesized associations were statistically analysed. The results indicate that new consultants perceived themselves adequately prepared for the medical and clinical aspects of their work, like mastery of clinical knowledge and skills. However, they reported being unprepared for the generic competencies such as supervision skills, leadership, management, and handling financial issues. Ten percent of the new consultants met the criteria for burnout and 18% scored high on the emotional exhaustion subscale. This lack of preparedness within the generic competencies was found to be associated with burnout among new consultants ($r = 0.15$, $p < 0.001$) whereas unpreparedness within medical competencies was not. Also, social support was found to be a protector against burnout. These findings illustrate the relevance of generic competencies for new hospital consultants in transition and also indicate that social support facilitates this intense and stressful phase within the medical career.

Chapter 5 further explores the transition to hospital consultant by comparing Danish and Dutch new consultants' perceptions regarding their transition. This approach allowed the investigation of different contextual factors in this transition. In particular, contextual factors concerning the influence of factors related to the organisation of specialty training and healthcare. A survey, identical to the one described in chapter 4, was distributed to all 1336 Danish new consultants registered in 2007-2010. Data on the received preparation for medical and generic competencies, perceived intensity, and burnout compared between the two countries. Additionally, to investigate whether disparities between the findings can be explained by contextual dissimilarities, differences in working conditions and cultural dimensions of the two countries are explored. The results illustrated that, compared to their Dutch counterparts; Danish consultants perceived their specialty training and the transition as less intense, reported higher levels of preparation for generic competencies and scored lower on burnout. Possible explanations for these differences are discussed in this chapter. Specifically, explanations related to progressive independence received during specialty training, regulations concerning working hours and cultural dissimilarities, such as differences in shared decision making. These results underscore the importance of contextual aspects in the transition to hospital consultant. Furthermore, they show that Denmark appears to be more successful in aligning training with actual practise. This indicates that the transition from training to work can be facilitated by regulations regarding working hours and progressive independence of trainees.

Chapter 6 describes a longitudinal qualitative study aimed at the examination of new consultants' development into the role of supervisor during on call shifts. This chapter concentrates on supervision, since difficulty with supervision is identified as a major issue in the transition to consultant in chapters 3 and 4. Furthermore, the longitudinal design of the qualitative study enabled the follow up and development of new consultants in transition. To do so, serial individual interviews with new Internal Medicine consultants were conducted during a six month period. The interviews focused on: the preparation for the role of supervisor received during their specialty training, their actions to master this role, and their development over time. Analysis resulted in the identification of three interrelated domains of relevant factors: preparedness, personal attributes, and contextual characteristics. First of all, preparedness by training for taking full responsibility for specialty trainees' actions while supervising them from a distance turned out to be important. Secondly, personal attributes, like coping strategies and views on supervision appeared to guide consultants' development as supervisors. Finally, contextual characteristics were identified essential to this process, especially knowing the trainee, being familiar with departmental procedures, and support from colleagues. Chapter 6 presents how notions from psychology research on effective coping strategies and goal orientation underpin these results. Also, chapter 6 illustrates that exposure to supervision during specialty training is pivotal for a smooth progression into the role of supervisor as new consultant. Finally, practical implications that surfaced from the results are discussed, like proper induction courses for new consultants.

Chapter 7 combines the research findings of the individual research projects of this thesis with elements derived from the four perspectives on transitions as described in chapter 1. By merging the research findings and the varying perspectives on transitions, a different approach of the transition to hospital consultant and transitions in general is proposed. An approach in which transitions are not just threats, but also opportunities for rapid personal and professional development. Chapter 7 continues by illustrating how transitions are characterised by an intricate interplay between preparation received through training, psychological characteristics like coping strategies, and contextual factors. This approach contrasts with medical education's most prevalent view on transitions as threats that should be prevented through curriculum alterations. Such a perspective builds on the view that transitions result from inadequate preparation, and thereby ignores the psychological and contextual characteristics of transitions. Subsequently, the strength and limitations of this thesis are discussed. Its strength relates to the relevance, methodological diversity and rigour, and the incorporation of multiple theoretical concepts derived from adjacent research fields. The limitations pertain to the transferability of the research findings and potential sources of bias, relating to self assessment and non response. Additionally, chapter 7 discusses implications for the organisation of specialty training and health care. These implications relate to the institution of training in generic competencies for specialty trainees. This training should be followed by progressive independence in specialty training programs. This would enable the actual deployment of the newly acquired competencies. Another implication relates to the incorporation of sound induction courses for new consultants to familiarize them with the new departments, its employees and other logistic characteristics. Finally, several possibilities for future research are discussed. The effect of competency based curricula on the level of preparedness of new consultants within generic competencies provides ample research opportunities in the future. Also, the further investigation of transitions as developmental processes and learning opportunities is a first fertile area for future research.

Samenvatting

Let op de leemte. De transitie van arts in opleiding tot specialist naar medisch specialist.

Na het artsexamen beginnen veel geneeskundestudenten aan een medisch specialistische vervolgopleiding. Deze opleiding zal hen uiteindelijk in staat stellen om als zelfstandig medisch specialist te werken. De medische vervolgopleidingen in Nederland variëren in duur van drie tot zes jaar afhankelijk van het specialisme. Als gevolg van deze opleidingsstructuur hebben medisch specialisten minimaal negen tot twaalf jaar opleiding genoten tegen de tijd dat zij dit punt bereiken. De overgang naar het werken als medisch specialist ofwel de transitie van arts in opleiding tot specialist (AIOS) naar medisch specialist is het centrale onderwerp van dit proefschrift.

Hoofdstuk 1 begint met een beschrijving van de ontstaansgeschiedenis van transities in het medisch opleidingstraject. Hierna wordt een overzicht gegeven van de bestaande literatuur over de transitie naar medisch specialist. Als aanvulling op dit medisch onderwijskundige literatuuroverzicht worden verschillende alternatieve perspectieven op transities beschreven, afkomstig van onderzoek uit de sociale psychologie, organisatiepsychologie en pedagogiek. Hieruit blijkt dat bij transities zowel eerdere individuele ontwikkeling als actuele uitdagingen in het functioneren naar voren komen. Hierdoor kunnen transities als middel functioneren om de verdiensten en tekortkomingen van het huidige medisch onderwijskundige systeem in kaart te brengen. De weergave van de huidige kennis over transities in het medisch opleidingstraject en de presentatie van de alternatieve perspectieven op transities leiden naar de centrale onderzoeksvragen van dit proefschrift. Ten eerste, welke factoren ervaren nieuwe specialisten als belangrijk voor de transitie naar medisch specialist? Vervolgens, wat is de invloed van de ontvangen voorbereiding tijdens de medisch specialistische vervolgopleiding op het verloop en de uitkomst van de transitie naar medisch specialist? Tot slot, welke invloedrijke psychologische en contextuele factoren in de transitie van AIOS naar medisch specialist kunnen worden geïdentificeerd?

Hoofdstuk 2 beschrijft een kritische synthese van de medisch onderwijskundige literatuur over transities en de rol die zij spelen in de ontwikkeling van geneeskundestudenten en specialisten. Om te identificeren op welke wijze transities momenteel worden geconceptualiseerd door de beroepsgroep werden zes toonaangevende medisch onderwijskundige vakbladen doorzocht op publicaties hierover. De geïdentificeerde publicaties over de drie grote transities binnen het medische opleidingstraject worden beschreven en gecategoriseerd als objectiverend, verklarend, beschrijvend en/of rechtvaardigend onderzoek. De eerste transitie binnen de studie geneeskunde, van de preklinische naar de coschapfase, confronteert studenten ermee dat ze opnieuw moeten leren wat ze dachten al geleerd te hebben in de collegebanken. Daarnaast moeten zij deze nieuwe zaken op een zelfgestuurde wijze tot zich nemen. De transitie van geneeskundestudent

naar arts (niet) in opleiding tot specialist (A(N)IOS) resulteert vooral in veel nieuwe uitdagingen bij het leveren van patiëntenzorg en bijkomende verantwoordelijkheden. Ook wordt de A(N)IOS uitgedaagd doordat hij patiëntenzorg moet leveren en tegelijkertijd hiervan moet leren om zich te ontwikkelen tot specialist. De laatste transitie, van AIOS naar specialist, confronteert startende specialisten met een veelvoud aan niet-klinische taken, het nemen van beslissingen en het delegeren van verantwoordelijkheden. Deze transities zijn vaak veeleisende en stressvolle periodes in de medische carrière en worden gekenmerkt door een groot aantal nieuwe taken en een nieuwe rol binnen de zorg. Ook wordt duidelijk dat transities in het medisch onderwijs momenteel worden beschouwd als ongewenste en potentieel schadelijke onderbrekingen van het medisch opleidingscontinuüm. Daarnaast wordt duidelijk dat het merendeel van de verklarende studies geen gebruik maakt van conceptuele kaders die kunnen helpen om een dieper inzicht te verkrijgen in de waargenomen verschijnselen. Het wordt geïllustreerd hoe onderzoek vanuit de psychologie zulke waardevolle perspectieven biedt die van toepassing zijn op transities binnen medisch onderwijs. Om de ombuiging van transities van bedreigingen naar leermogelijkheden te faciliteren, moet medisch onderwijs zich richten op het ontwikkelen van effectieve coping vaardigheden van studenten en artsen, om hen zo effectief om te kunnen laten gaan met de uitdagingen van de nieuwe fase.

Hoofdstuk 3 doet verslag van een explorerend kwalitatief onderzoek om zo retrospectief de vraag te beantwoorden: zijn startende medisch specialisten voldoende opgeleid en voorbereid om de taken en plichten te vervullen die horen bij hun nieuwe positie? Er werden in totaal 14 individuele semi gestructureerde interviews gehouden met nieuwe internisten en gynaecologen. Het onderzoek, met een 'grounded theory' ontwerp, leidt tot een conceptueel raamwerk over de transitie van AIOS naar specialist. Het raamwerk bestaat uit drie thema's die met elkaar in interactie zijn in een longitudinaal proces en wordt ondersteund door concepten uit organisatie- en sociale psychologie. Startende specialisten worden geconfronteerd met een overvloed aan nieuwe verstorende elementen (eerste thema) die betrekking hebben op nieuwe taken zoals supervisie, management en afhandelen van financiële kwesties. Maar de verstorende elementen bestaan ook uit een nieuwe rol in de organisatie en een onbekende context. De effecten van deze verstorende elementen zijn afhankelijk van de perceptie en coping strategieën van de startende specialist (tweede thema) die op hun beurt de persoonlijke ontwikkeling (derde thema) in de transitie sturen. Het conceptuele raamwerk geeft inzicht in de invloedrijke factoren binnen de transitie van AIOS naar medisch specialist en kan gebruikt worden om maatregelen op te baseren die deze intense transitie kunnen faciliteren.

Hoofdstuk 4 rapporteert over een landelijk vragenlijstonderzoek onder alle Nederlandse nieuwe specialisten (n = 2643) die in de jaren 2007-2009 hun vervolgopleiding hebben afgerond. Het doel was te onderzoeken of de mate van voorbereiding op medische en generieke competenties,

ontvangen tijdens de vervolgopleiding, geassocieerd is met burnout onder startende medisch specialisten. Verder wordt gekeken of de gepercipieerde intensiteit en de ontvangen steun geassocieerd zijn met burnout. De gebruikte vragenlijst bestaat uit items over ervaren mate van voorbereiding op zowel medische als generieke competenties, de intensiteit van de transitie, ontvangen steun en burnout. De gehypothetiseerde associaties worden getoetst met behulp van 'structural equation modelling' technieken. De resultaten laten zien dat startende specialisten zich goed voorbereid voelen voor de medische en klinische aspecten van hun werk zoals de beheersing van relevante klinische kennis en vaardigheden. Echter, nieuwe specialisten voelen zich onvoorbereid op de benodigde generieke competenties zoals leiderschap, management en het omgaan met financiële aspecten van de gezondheidszorg. Tien procent van de startende specialisten voldeed aan de criteria voor burnout en 18% scoorde hoog op de subschaal emotionele uitputting. Verder blijkt dat de mate van ervaren onvoorbereidheid voor de generieke competenties is gecorreleerd met burnout onder startende specialisten ($r = 0,15$, $p < 0,001$), terwijl dit niet het geval is bij onvoorbereidheid voor de medische competenties. Ook blijkt dat ervaren steun beschermt tegen burnout. Deze bevindingen illustreren de relevantie van de generieke competenties voor het werken en starten als medisch specialist alsook het faciliterende effect van steun tijdens deze intensieve fase en bieden verder inzicht in deze transitie.

Hoofdstuk 5 beschrijft een vervolgstudie die verder ingaat op de transitie van AIOS naar medisch specialist door middel van een vergelijking van de ervaringen van Deense en Nederlandse nieuwe medisch specialisten. Door deze aanpak wordt nader inzicht verkregen in de invloed van contextuele kenmerken op deze transitie, in het bijzonder kenmerken betreffende de organisatie van de vervolgopleidingen en de gezondheidszorg. Dezelfde vragenlijst als in hoofdstuk 4 werd verstrekt aan alle 1336 Deense medische specialisten die gestart waren in de jaren 2007-2010. De data over de niveaus van voorbereiding voor de medische en generieke competenties, ontvangen steun, intensiteit en burnout werd vergeleken tussen de landen. Daarnaast worden verschillen in arbeidsomstandigheden en culturele aspecten in kaart gebracht om te onderzoeken of deze karakteristieken mogelijke verklaringen bieden voor gevonden verschillen in de transitie. De resultaten laten zien dat Deense startende specialisten, in vergelijking met hun Nederlandse collega's, zich beter voorbereid voelen op generieke competenties, de transitie als minder intensief ervaren, en lagere burnout scores hebben. Mogelijke verklaringen voor deze gevonden verschillen betreffen verschillen tussen Nederland en Denemarken in progressieve onafhankelijkheid in de vervolgopleidingen, arbeidstijden regulatie en culturele karakteristieken zoals het gezamenlijk nemen van beslissingen. Deze praktijken zijn in Denemarken meer gebruikelijk dan in Nederland en lijken de transitie te faciliteren. Dit hoofdstuk illustreert het belang van contextuele aspecten in de transitie naar specialist. Het laat tevens zien dat er in de Deense situatie een meer succesvolle aansluiting van trainingsinhoud op de praktijk lijkt te zijn. Dit duidt erop dat de transitie van AIOS naar specialist zou kunnen worden versoepeld door bijvoorbeeld regelgeving rondom werktijden en progressieve onafhankelijkheid van AIOS.

Hoofdstuk 6 beschrijft een longitudinale kwalitatieve studie waarin wordt onderzocht hoe startende specialisten zich ontwikkelen in hun rol als supervisor op afstand. Supervisie op afstand staat in dit hoofdstuk centraal omdat dit als belangrijk thema binnen de transitie is geïdentificeerd in de hoofdstukken 3 en 4. Daarnaast maakt het longitudinale ontwerp van de studie de bestudering van het ontwikkelingsproces van de nieuwe specialisten mogelijk. Zo wordt meer inzicht verkregen in hoe startende specialisten omgaan met een dergelijke verandering. Startende internisten werden in een periode van zes maanden meerdere keren geïnterviewd. Er werd gesproken over de ontvangen voorbereiding op de rol als supervisor, de ondernomen handelingen om deze nieuwe rol onder de knie te krijgen en de persoonlijke ontwikkeling door de tijd heen. De analyse resulteerde in de identificatie van drie onderling samenhangende domeinen van relevante factoren, namelijk de mate van voorbereiding, persoonlijke eigenschappen en contextuele kenmerken. In de eerste plaats speelt de mate van voorbereiding op het dragen van eindverantwoordelijkheid voor de door de AIOS geleverde patiëntenzorg een rol. Verantwoordelijkheid voor de zorg, terwijl die AIOS en de patiënt enkel van een afstand worden gadegeslagen. De persoonlijke eigenschappen zoals coping strategieën en opvattingen over goede supervisie sturen de ontwikkeling van startende specialisten in hun rol als supervisor. Tot slot kwam naar voren dat verschillende contextuele factoren van groot belang zijn in dit ontwikkelingsproces. Dit betreft bijvoorbeeld de noodzaak om de AIOS te kennen alvorens deze te superviseren, bekend te zijn met logistieke zaken betreffende patiënten, aanbod van collegiaal overleg door de meer ervaren specialisten en geboden steun en betrokkenheid. Dit hoofdstuk laat zien hoe deze resultaten worden ondersteund door bevindingen vanuit onderzoek naar effectieve copingstrategieën en 'goal orientation'. Ook illustreert hoofdstuk 6 dat blootstelling aan supervisetaken ten tijde van de medische vervolgopleiding belangrijk is voor het soepel aannemen van de rol als supervisor. Tot slot worden praktische implicaties besproken zoals goede inwerkprogramma's voor nieuwe specialisten.

Hoofdstuk 7 combineert de onderzoeksresultaten van de individuele onderzoeksprojecten van dit proefschrift met elementen vanuit de vier perspectieven op transities zoals beschreven in hoofdstuk 1. Deze samenvoeging resulteert in een nieuw perspectief op de transitie van AIOS naar specialist en in bredere zin op alle transities binnen de medische carrière. Dit is een benadering waarin de transitie niet alleen wordt gezien als bedreiging, maar ook als mogelijkheid voor snelle persoonlijke en professionele ontwikkeling. Daarnaast wordt beschreven hoe transities worden gekarakteriseerd door een ingewikkeld samenspel tussen de ontvangen voorbereiding tijdens de opleiding, psychologische kenmerken zoals coping strategieën en verschillende contextuele factoren. Deze benadering van transities contrasteert met het gangbare medisch onderwijskundige perspectief waarin transities worden gezien als bedreigingen voor het individu die zouden kunnen worden voorkomen door curriculum veranderingen. Dit komt op zijn beurt voort uit de opvatting dat de intensiteit van transities vooral is toe te schrijven aan

onvoldoende ontvangen voorbereiding, waarbij de psychologische en contextuele aspecten van transitie genegeerd worden. Na de presentatie van deze nieuwe benadering van de transitie naar specialist worden de sterke punten en beperkingen van dit proefschrift besproken. De sterke punten van dit proefschrift hebben betrekking op de relevantie van het onderwerp, de methodologische diversiteit en nauwgezetheid, en de integratie van verschillende theoretische concepten afkomstig uit aangrenzende onderzoeksvelden. De beperkingen hebben betrekking op de generaliseerbaarheid van de onderzoeksresultaten en potentiële bronnen van bias door het gebruik van zelfevaluatie van specialisten en non respondenten. Vervolgens gaat hoofdstuk 7 verder met de bespreking van praktische implicaties voor de organisatie van de medische vervolgopleidingen en de gezondheidszorg waartoe dit proefschrift aanzet. Een van de implicaties bestaat uit het inlijven van trainingsmodules in de vervolgopleiding die zich richten op de benodigde generieke competenties. Deze trainingsmodules zouden moeten worden opgevolgd door progressieve onafhankelijkheid voor AIOS zodat de nieuwe vergaarde competenties ook daadwerkelijk gebruikt worden. Een andere praktische implicatie bestaat uit het ontwikkelen van gedegen inwerkprogramma's voor nieuwe specialisten om hen vertrouwd te maken met de nieuwe afdeling, collega's en logistieke zaken. Tot slot worden verschillende mogelijkheden voor toekomstig onderzoek besproken. Deze variëren van nader onderzoek naar de nieuwe benadering van transitie als ontwikkelingsprocessen en leermogelijkheden tot onderzoek naar de effecten van competentiegerichte vervolgopleidingen en de voorbereiding die deze bieden voor de generieke competenties die specialisten nodig hebben.

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Publications

International publications

1. How lead consultants approach educational change in postgraduate medical education
JPI Fokkema, **M Westerman**, PW Teunissen, N van der Lee, AJJA Scherpbier, CPM van der Vleuten, PJ Dörr, F Scheele. *Med Educ* 2012; 46(4), pp 390-398
2. Junior doctors caught in the clash; the transition from learning to working explored. PW Teunissen, **M Westerman**. *Med Educ* 2011; 45(10), pp 968-970.
3. The curriculum for the doctor of the future; messages from the clinician's perspective. N van der Lee, **M Westerman**, JPI Fokkema, CPM van der Vleuten, AJJA Scherpbier, F Scheele. *Med Teach* 2011; 33(7), pp 555–561.
4. The need for a uniform use of the construct of burnout. **M. Westerman**, JPI Fokkema, PW Teunissen. *Acad Med* 2011; 86(6), pp 661
5. Opportunity or threat; ambiguity in the consequences of transitions in medical education. PW Teunissen, **M. Westerman**. *Med Educ* 2011; 45(1), pp 51-59
6. Understanding the transition from resident to attending physician: a transdisciplinary, qualitative study. **M. Westerman**, PW Teunissen, CPM van der Vleuten, AJJA Scherpbier, CEH Siegert, N van der Lee, F Scheele. *Acad Med* 2010; 85(12), pp 1914-1919
7. Exploration of perceived effects of innovations in postgraduate medical education. JPI Fokkema, PW Teunissen, **M Westerman**, N van der Lee, AJJA Scherpbier, CPM van der Vleuten, PJ Dörr, F Scheele. (accepted for publication in *Medical Education*)
8. The transition to hospital consultant and the influence of preparedness, social support, and perception; a structural equation modelling approach. **M Westerman**, PW Teunissen, JPI Fokkema, CPM van der Vleuten, AJJA Scherpbier, CEH Siegert, F Scheele. (accepted for publication in *Medical Teacher*)
9. The transition to hospital consultant; Denmark and the Netherlands compared on preparedness for practise, perceived intensity, and contextual factors. **M Westerman**, PW Teunissen, R Lundhus Jørgensen, JPI Fokkema, CEH Siegert, CPM van der Vleuten, AJJA Scherpbier, C Ringsted, F Scheele. (under review)

10. New consultants mastering the role of on call supervisor: a longitudinal qualitative study. **M Westerman**, PW Teunissen, JPI Fokkema, CPM van der Vleuten, AJJA Scherpbier, CEH Siegert, F Scheele. (under review)

Book chapters

1. Transitions in Medical Education. **M Westerman**, PW Teunissen. The Oxford Textbook of Medical Education. Oxford University Press, 2013 (in press)

National publications

1. Starten als jonge klare. Waar lopen startende specialisten tegenaan? **M Westerman**, I Desar. AIOS 2012, Vol 23(1), pp 14-15.
2. Waar lopen jonge specialisten tegenaan? En hoe draagt de vervolgopleiding met vernieuwingen bij aan hun voorbereiding? **M. Westerman**, F Scheele, PW Teunissen, JPI Fokkema. NTOG februari 2012; Vol 125; pp 19-23
3. In VIVO Richtlijn. Richtlijn bekwaamverklaringen in de specialistenopleiding. JP Lips, F Scheele, MGK Dijksterhuis, **M Westerman**, Th J ten Cate. Tijdschrift voor Medisch Onderwijs, 2010 (29), S2 p. s55-s57

Curriculum Vitae

Michiel Westerman was born as the youngest of four on the 13th of August 1983 in Harlingen, the Netherlands. After graduating cum laude from high school, he commenced his undergraduate medical training at the VU Medical Centre in Amsterdam in 2001.

During medical school, he trained younger peers in clinical courses, took elective classes in medical ethics and theology, and was a board member of the student fraternity Navigators Amsterdam. When graduating cum laude from medical school in 2008, Michiel started his PhD studentship on the transition to hospital consultant. In this period he combined his research with coordinating the clerkships and implementation of a new undergraduate medical curriculum in the St Lucas Andreas Hospital in Amsterdam.

In September 2012, Michiel started his specialty training within Internal Medicine. Furthermore, he continues as a researcher within medical education at the VU Medical Centre, Amsterdam, the Netherlands.

Michiel is married to Annelijn (1982). They live in Amsterdam together with their two sons, Wisse (2009) and Mats (2011).

