REVIEW

A Systematic Review of Qualitative Research on the Meaning and Characteristics of Mentoring in Academic Medicine

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BACKGROUND: Mentorship is perceived to play a significant role in the career development and productivity of academic clinicians, but little is known about the characteristics of mentorship. This knowledge would be useful for those developing mentorship programs.

OBJECTIVE: To complete a systematic review of the qualitative literature to explore and summarize the development, perceptions and experiences of the mentoring relationship in academic medicine.

DATE SOURCES: Medline, PsycINFO, ERIC, Scopus and Current Contents databases from the earliest available date to December 2008.

REVIEW METHODS: We included studies that used qualitative research methodology to explore the meaning and characteristics of mentoring in academic medicine. Two investigators independently assessed articles for relevance and study quality, and extracted data using standardized forms. No restrictions were placed on the language of articles.

RESULTS: A total of 8,487 citations were identified, 114 full text articles were assessed, and 9 articles were selected for review. All studies were conducted in North America, and most focused on the initiation and cultivation phases of the mentoring relationship. Mentoring was described as a complex relationship based on mutual interests, both professional and personal. Mentees should take an active role in the formation and development of mentoring relationships. Good mentors should be sincere in their dealings with mentees, be able to listen actively and understand mentees' needs, and have a well-established position within the academic community. Some of the mentoring functions aim at the mentees' academic growth and others at personal growth. Barriers to mentoring and dysfunctional mentoring can be related to personal factors, relational difficulties and structural/institutional barriers.

CONCLUSIONS: Successful mentoring requires commitment and interpersonal skills of the mentor and mentee, but also a facilitating environment at academic medicine's institutions.

KEY WORDS: mentoring; academic medicine; systematic review; qualitative research.
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INTRODUCTION

Mentoring relationships have become an object of intense study, beginning with the seminal work by Kathy E. Kram in the 1980s,[1] which initiated a surge of research in diverse settings such as business,[2,3] education[4,5] and nursing.[6] In academic medicine, mentoring was recognized as a crucial developmental relationship,[7] and our recent systematic review showed that mentoring has an important influence on personal development, career guidance, career choice and research productivity.[8] The review we initially performed[8] included only quantitative studies and focused exclusively on outcomes of mentorship. It did not address the meaning of mentoring, its formation and characteristics of its actors, which are more appropriately explored by the use of qualitative research methodologies.

Terms such as "mentoring," "supervision" and "role modeling" can all be considered as describing developmental interactions, but they are often used interchangeably or without clear demarcation, which makes their operationalization more difficult. This lack of clarity has consequences in practice-oriented disciplines, where the development of programs is based on assumptions about the meaning and effectiveness of mentoring.[5,9]

Expert panels have made attempts to clarify the concept of mentoring in academic medicine,[10,11] and authors have compiled narrative literature reviews[12–14] or offered personal views[15] on the desirable characteristics of mentoring relationships. Such approaches would be enriched by exploring the personal experience of mentoring as obtained through qualitative research methodologies. Acknowledging that the way people give meaning to concepts is context-dependent,[16] we conducted a systematic review of qualitative research to explore what is known about the characteristics and dynamics of mentoring relationships in the context of academic medicine.

METHODS

Inclusion and Exclusion Criteria

We sought studies that used qualitative research methods to explore the meaning and characteristics of mentoring relationships in academic medicine. We defined "qualitative research" as any study that placed people's own voices at the center of the interest and "academic medicine" as exploring a population of medical students or physicians at a medical school, university hospital or academic general practice. Excluded were quantitative studies as well as studies dealing with peer-mentoring, online- and tele-mentoring, and studies exploring short-term, task-oriented relationships such as clinical, research or educational supervision. The focus of this review was on a traditional, dyadic model of mentoring (one-to-one, senior-to-junior, face-to-face),[17] which was the most frequently used model in formal mentoring programs described in the medical literature.[9] We critically appraised all the included studies to identify their strengths and limitations, but we did not exclude any article based on insufficient methodological quality to avoid eliminating data germane to the purpose of the review.[18–20]

Search and Retrieval of Reports

We searched the following databases: PsycINFO (1967-December Week 2, 2008); ERIC (1965-December Week 2, 2008); Ovid MEDLINE(R) (1950-November Week 4, 2008), Scopus, an Elsevier abstract and citation database (1996-November 28, 2008) and Ovid Current Contents/All Editions (1993–2008 Week 49). We used a combination of key words describing population, setting, target phenomenon and methodology[21] (Appendix 1, online). There were no language restrictions.

Articles selected for inclusion were used as a starting point for the berry-picking search,[22] which consisted of footnote chasing, citation searching, author searching and searching of "related articles" in MEDLINE. Fifteen authors of included articles were contacted to identify other potentially relevant articles. Reviewers' own work and knowledge of the literature, as well as the results of search for an earlier systematic review on mentoring[8] were also used to find possible articles for inclusion.

Titles and abstracts of all retrieved articles were independently screened by two reviewers to determine if they met inclusion criteria. Full texts of the articles were reviewed by two reviewers (DS and SES), and in cases of disagreement, the third reviewer was consulted and a decision was made by consensus. Quality assessment and data abstraction were also completed independently by two investigators (DS and SES).

Analysis and Presentation of Findings

In the analysis of primary study findings we used the method of qualitative meta-summary,[21] which refers to the non-interpretive aggregation of qualitative research findings. First, we extracted the findings by separating researchers' interpretations of primary data, which we considered as findings from other parts of the text, such as descriptions of data analysis procedures, quotations used to illustrate and support researchers' interpretations, or researchers' discussions of the findings. Second, we edited the findings to allow better comprehension and grouped them into thematic categories. Third, we abstracted the findings to refine them and eliminate redundancies. Simultaneously with this process, we looked for possible ways to subclassify the categories, as well as for links and patterns that would allow more comprehensive understanding of the target phenomenon. We did not calculate manifest frequencies and intensity effect sizes,[21] as there were too few articles to obtain meaningful information. Finally, for the categories that contained enough primary study findings, we developed taxonomies to show their conceptual range.

The analysis of findings was initially done by one of us (DS), and a draft of the meta-summary was shared with the other two authors, who suggested other possible approaches and interpretations. The discussion among the authors continued in the process of "negotiated consensual validation"[21] until an agreement was reached.

The findings of primary studies are presented as statements with their respective reference numbers. All other statements in the Results section, related to grouping, classification or summarizing of primary studies' findings, are made by the authors of the review.

RESULTS

A total of 8,487 citations were retrieved from the bibliographic database search, 114 full-text articles were reviewed, and 8 met inclusion criteria.[23–30] The "berry-picking search" yielded 3,431 potentially relevant articles. Four full text articles were retrieved, and one of these met the inclusion criteria.[31] Thus, the the total number of included articles was nine (Appendix 2, online). No additional relevant articles were identified by experts in the field.

The median (range) number of participants in the included studies was 18 (2–71), and all of the studies were conducted in North America. The nature of mentoring was not described in three studies,[24,30,31] four studies explored formal mentoring relationships,[23,26,28,29], one study explored informal mentoring relationships[27] and one study provided participants with a definition of mentorship but did not describe if this was a formal process.[25] Most of the studies included participants of both genders. More than half of the studies included both mentors and mentees, while the rest included only mentees. The majority of samples were self-selected or purposive/theoretical, and the data were mostly collected by interviews or focus groups. The analysis was mostly done by either thematic analysis or using a grounded theory approach (Appendix 3, online).

Quality assessment of the articles (Appendix 4, online) revealed that most studies had clearly stated objectives, but the description of the sample and sampling procedures sometimes lacked detail.[23,24,27,28,31] Study findings were stated with varying levels of detail, and in one report it was difficult to discern the findings of the qualitative analysis.[23]

We identified five major themes in relation to mentoring relationships: (1) desired characteristics and actions of the mentor and mentee, (2) initiation of mentoring relationships, (3) structure of mentoring relationships, (4) characteristics of mentoring relationships, and (5) barriers and possible solutions to mentoring.

1. *Desired characteristics and actions of mentor and mentee*

Four studies[24,29–31] reported findings about the role of mentees. Mentees should take the initiative for cultivating the

relationship with their mentors[24] (taking *the driver's seat*[31]). It is important that mentees have commitment to the success of the mentoring relationship and passion to succeed in their career.[31] Mentees must be proactive, willing to learn, and be selective in accepting advice from the mentor.[30]

It was perceived that for successful relationships, mentees should prepare for the meetings with their mentors, provide an outline of their activities for discussion, complete tasks that were agreed upon and respond honestly to feedback.[29] Mentees should also perform self-reflection and reveal flaws so that their mentors can interpret and critique behavior.[29] Courage is needed on the part of mentees to face their weaknesses and to make effective changes.[29]

Six studies[24–26,29–31] reported the desired characteristics of the mentor. We classified these characteristics as pertaining to the mentor's personality, interpersonal abilities and professional status (Table 1). Good mentors should be honest[29,31] and sincere[24] in their dealings with mentees, be able to listen actively[30] and understand mentees' needs,[26,31] and have a well-established position within the academic community.[25]

Six studies[24,25,27–29,31] explored the role of good mentors and how they interacted with their mentees. Some of the actions were aimed at academic growth of mentees, while others were targeted toward personal growth. We conceptualized this range of actions as a continuum, with an increasing level of privacy and intimacy from the institutional to the personal side (Table 2). On the institutional side, mentoring actions aimed to enhance mentees' visibility[25] and connections within the academic environment[25,29,31] and to protect them from adverse influences and harsh interactions.[25] On the personal side, mentors helped to create a safe environment for expression of thoughts and feelings.[29] They provided moral support[24] and offered guidance in the processes of self-reflection,[29] vision-building[24,25] and goal-setting.[29]

2. *Initiation of the mentoring relationship*

Only two studies[24,25] reported findings about the initiation of the mentoring relationship. These studies reported that emerging mentees had the responsibility to find a mentor,[24,25] but their institutions could provide them with early guidance and education.[24]

Sometimes it was necessary to look for mentors in many places (inside and outside the department and institution, among peers and more senior faculty members).[25] It was critical to locate a mentor early in one's academic career, but persistence and patience might also be necessary in finding a mentor.[25]

Mentoring can develop informally, as a relationship that evolves naturally over time toward mentoring commitments, or formally, as an assigned mentoring relationship.[25] The former may be also termed as self identification of mentors by mentees. Participants in four studies[25,26,30,31] raised concerns about the formal assignment of mentoring pairs. This assignment could ignore the interpersonal aspect ("chemistry") of the relationship and thus prove less effective.[25] Assigned mentorship could even have a negative impact, e.g., by making mentees feel "forced" into the relationship.[31] Successful mentoring can develop through formal assignment, but it depends on the individuals involved.[26] These same studies also suggested that self identification of mentors was perceived in many cases to be beneficial, allowing a more comfortable and effective relationship to develop.[25,26,30,31]

3. *Structure of the mentoring relationship*

Structure relates to the gender/race/ethnic composition and the number of actors in the mentoring relationship. Experiences that members of different gender, race or ethnicity groups bring to their encounter can be seen as opportunities that allow for greater mutual growth.[25] However, the findings about the need of gender/race/ethnic congruence, reported in five studies,[25–27,30,31] were inconclusive. It seems that basing matches on such considerations was not essential[25] and that the sensitivity of the mentor was more important than matching on any of these factors.[26]

One study found that female and minority residents and faculty, particularly those with, or intending to have, children, felt that gender is vital to the mentoring relationship.[27] Concerns were raised in another study that a male mentor may have difficulty in giving criticism to women.[26] Furthermore, a study found that male mentors were not always perceived to be able to provide guidance on the needs of a female mentee, especially in relation to the work and life balance, e.g., timing of maternity leave[31] or managing a career while raising a family.[27] The experience of women in academic medicine was perceived to be different from the experience of men, and therefore one study suggested that female mentees may benefit from the advice of another woman.[26] Two studies identified the concern that the mentoring relationship can be tainted by sexual harassment, and it is important to set clear boundaries to prevent it.[25,26]

The findings regarding mentoring of minorities were even more tentative than those regarding mentoring women. Sensitivity in mentoring minorities is important, but the pairing by race or ethnicity, although preferred, is rarely possible.[26]

Systems of multiple mentors may be an appropriate answer to the challenges of gender, racial, ethnic or other differences that can make finding common ground in the mentoring relationship difficult.[26] Participants in three studies[25,26,31] acknowledged that many people might fill the mentoring role. Two models of dual mentorship were suggested: (1) a female

Table 1. Desired Characteristics of Mentors

Dimension	Characteristic
Personal	Altruistic[31]
	Understanding[31]
	Patient[31]
	Honest[31]
	Responsive[25]
	Trustworthy[27]
	Nonjudgmental[27]
	Reliable[27]
	Active listener[30]
	Motivator[25]
Relational	Accessible[25,27,31]
	Sincerely dedicated to developing an important relationship with the mentee[25]
	Sincerely wants to offer help in mentee's best interest[24]
	Able to identify potential strengths in their mentees[30]
	Able to assist mentees in defining and reaching goals[30]
	Holds a high standard for the mentee's achievements[25]
	Compatible ("good match") in terms of practice style, vision and personality[27]
Professional	Senior[31] and well-respected in their field[25]
	Knowledgeable[25] and experienced[27]

Table 2. Actions of a Good Mentor

Dimension[a]	Area	Action
Personal	Emotions	Expressing emotions and sharing feelings honestly[29]
		Helping mentee to clarify feelings[29]
		Permitting vulnerability[29]
		Encouraging discussion of the personal meaning of the topic or experience[29]
	Moral support	Giving moral support to help mentee cope with the stresses[24]
		Helping build motivation[25,29]
	Private-professional issues	Tracking personal issues of the mentee, making links over time[29]
		Helping mentee with balancing and coping with career demands and personal responsibilities[27,31]
	Self-awareness	Giving positive feedback and constructive criticism[25]
		Uncovering mentee's underlying assumptions through careful probing[29]
		Helping mentee to identify areas for further performance improvement[29]
		Guiding mentee in decision-making (or facilitating decision-making)[31]
		Fostering self-reflection[29]
	Vision-building and goal-setting	Appreciating the mentee's abilities, goals and interests[24]
		Enabling mentee to remain open-minded about possible career paths by supporting their interests while also promoting flexibility[24]
		Helping mentee to articulate vision for his/her future[24]
		Helping mentee to clarify his/her goals[29]
		Recognizing the potential of the mentee and envisioning possibilities[25]
		Engendering a sense of possibility and wonder while encouraging the mentees to reach to their highest potentials[25]
		Encouraging higher-order goals beyond mentee's initial conception[29]
		Challenging mentee to expand his/her goals[29]
	Role modeling	Being a role-model for good mentorship[31]
	Skill development	Helping mentee to analyze data[28] and prepare[31] manuscripts and presentations
	Expanding engagement	Inviting mentee to participate in new projects[28]
	Career monitoring	Advising on career progress, including achievement of appropriate career milestones and time management[31]
		Grant review[31]
	Navigating the institution	Teaching mentee to promote themselves[25]
		Teaching mentee "the rules of the game" of academic politics and networking[25]
		Providing guidance on *'navigating university bureaucracy'* and dealing with difficult situations[31]
		Providing information[29]
	Connections and networking	Provides resources (references to others, secretarial support)[29]
		Helping mentee gain access to otherwise closed academic circles[25]
		Helping mentee establish connections with potential research collaborators[31]
		Providing networking opportunities[31]
Institutional	Protection and advocacy	Promoting mentee in the department and in the academic community at large while protecting him/her from the sometimes harsh interactions in academe[25]
		Advocating for the mentee[25]

[a]*Level of intimacy in the relationship decreases from the "Personal" to "Institutional" side*

mentee with a male mentor for her interest area and a female mentor for lifestyle issues (as there are usually not enough senior women to mentor junior women faculty in their interest area)[26] and (2) academic mentor (needs to be local) for guidance on promotion, career milestones, local politics, work and life balance, and a scientific mentor (who can be at a distant site) for guidance on research.[31] A disadvantage of multiple mentors is that they may have different opinions about the best course of the mentee's action and thus make the mentee's decisions more difficult.[25] Good communication across mentorship teams is essential to avoid confusion.[31]

4. *Characteristics of the mentoring relationship*

Five studies[24–26,30,31] included characteristics of the mentoring relationship, describing it as a personal connection and identifying its underlying values.

Personal connection. Mentoring relationships were described as being based on professional and personal interests.[30] They could be as complex and personal as the relationships with friends and family.[25] They implied an exchange of information that allowed the mentor and the mentee to appreciate the other as a whole person.[24] Mentoring relationships were potentially enhanced by similar interests and ideals ("chemistry"[25] or "resonance"[30]) and challenged by differences.[25] Both the mentor and the mentee should be able to recognize the changes in their relationship over time, with possible evolution into a peer relationship.[26]

Underlying values. It was perceived that mentoring should be based on honesty,[29] trust,[29] mutual respect,[29,31] open communication[31] and confidentiality,[31] all of which build an environment that is safe for self-exploration.[29] Furthermore, there should be a willingness to take risks and commitment to resolve conflict.[29] Both parties should acknowledge that the relationship centers on the needs of the mentee and make sure that the mentee clearly benefits from the relationship.[29] Expectations from both should be made clear, particularly regarding what intellectual property belongs to the mentee.[30]

5. *Barriers to mentoring, dysfunctional mentoring and possible solutions*

All reviewed studies reported barriers to mentoring. These could be classified as related to personal characteristics of the

mentor or the mentee, their relationship, or institutional constraints and limitations (Table 3.) The same taxonomy was applied to possible solutions, or ways to improve mentoring, which were suggested in five studies[23,24,28,30,31] (Table 4).

Table 3. Barriers to Mentoring and Dysfunctional Mentoring

Dimension	Area	Barrier
Personal	Mentee-related	Courage needed on the part of mentee to face his/her inadequacies and to make effective changes[29]
	Mentor-related	Lack of appropriate mentoring skills on the part of mentor[31]
		Mentors too focused on research[30]
Relational	Vulnerability	Mentee feeling rejected when mentor cancels meetings[29]
	Differences	Lack of fit between mentor and mentee[26]
		Racial, ethnic or gender differences that make finding common ground difficult[25]
	Taking advantage of mentee	Mentor taking credit for the work of the mentee[25]
		Mentee having research stolen by their mentor[31]
		Mentor sexually harassing the mentee[25]
	"Bossy" mentoring	An authoritative boss-employee relationship[31]
		Mentor expecting the mentee to become a clone and perform only what the mentor is interested in, especially in research-oriented relationships[30]
		Mentor having preconceived ideas about what choices would be better for the mentee[24]
		Mentor demanding only certain outcomes from the mentee[30]
	Competition	Mentee surpassing a mentor in their area of expertise[30]
		Competition of mentee with their mentor on resources[31]
Structural	Time constraints	Lack of time for mentoring relationship[30,31]
		Lack of energy due to overwhelming logistical and tactical problems of the immediate[23]
	No continuity	Disconnection between preclinical and clinical years (for student mentoring)[24]
		Short duration of courses and clerkships (for student mentoring)[24]
	Conflict of interest	Clinicians mentoring students and also participating in residency selection[24]
	No incentive	Lack of academic recognition for mentors (e.g., in annual activity reviews or in promotion criteria)[31]
		Lack of financial incentive to mentorship[31a]
	Unavailable mentoring	Not enough selection[30,31]
		Inadequate access to faculty[24]
		Geographic distance between mentor and mentee[28]
		Lack of mentorship[31]

[a]*Perceived as a barrier only by mentees, not by mentors*

Table 4. Strategies to Improve Mentoring

Dimension	Area	Action
Personal	Training and education	Discussing mentoring early in study/training/career[30]
		Training faculty how to mentor, taking into consideration limited time available for such training (e.g., a workshop, a brief online course, a written guideline)[24,31]
		Coaching program in which mentors learn by doing and receive feedback from others during sessions on mentoring[31]
		A yearly seminar or 1-day workshop for interns to learn about mentorship[30]
Relational	Fostering relationship	Creating "a space" for interactions outside of the institution[30]
		Making mentoring meetings and contacts regular[31]
		Written partnership agreement or progress reports (to hold both the mentor and mentee accountable)[23,31a]
Structural	Choice and availability of mentors	Expand potential pool of mentors[24]
		Providing a list of potential mentors to the mentees, who would be advised to meet with potential mentors and to speak with their other mentees[24,31]
		Identifying mentors at other institutions and providing funding to allow the mentee to visit their mentor regularly[31]
		Promoting students' longitudinal relationships with clinicians through continuity clinics and research projects[24]
	Mentoring reward	Enhancing value of mentoring for faculty[24]
		Giving faculty incentives such as formal evaluations, protected time and awards[30]

[a]*However, if the mentor is the only one available in a particular institution, the mentee might not feel comfortable being open and critical about the relationship, resulting in inaccurate and meaningless progress reports*

DISCUSSION

This systematic review of qualitative research identified a set of mentoring functions that provided psychosocial and career-related support.[1] Mentors helped mentees flourish in the challenging environment of academic medicine by offering them emotional and moral support, working to build their personal and professional abilities, and providing them with backing and protection in their academic institutions. Personal inadequacies and relational problems were identified as the main barriers to mentoring, but structural constraints such as lack of time or incentive sometimes hindered the development of functional mentoring relationships.

Research in organizational settings has shown that mentoring can be distinguished from other developmental relationships such as leadership[32] or coaching[33] by the broadness of functions it offers. The range of desired actions and characteristics identified in this review indicates that mentoring in academic medicine is perceived as a uniquely encompassing relationship. Considering some of the mentoring actions described (e.g., helping the mentee to clarify feelings, motivating and fostering self-reflection), we conclude that a high-quality mentoring relationship, characterized by a high level of personal involvement and commitment, is meant to affect not only the professional, but also the personal lives of the mentor and mentee. The relational and reciprocal outcomes such as personal growth, interdependence and connectedness[34] invite further exploration, especially as these types of outcomes of mentoring in academic medicine have been underinvestigated.[7]

In her classification of relational problems in mentoring, Eby[35] envisions a continuum from minor problems, which presumably occur more frequently, to taxing ones, which are less frequent and more serious. We developed a different taxonomy consisting of personal, relational and structural dimensions, which enabled us to join barriers to mentoring and different types of dysfunctional mentoring in a single category. This seemed appropriate as there were too few examples and descriptions of relational problems in the studies we reviewed to produce a distinct classification of dysfunctional mentoring. Moreover, the three-dimension taxonomy was applicable to the suggested strategies of improving mentoring and allowed juxtaposing barriers to mentoring with ways to overcome them.

There are some limitations to this review. First, we did not search the grey literature, such as working papers or conference proceedings that were not formally published or subjected to peer review. However, we did a comprehensive search of available databases and contacted experts in the field. Despite our efforts, it is possible (as with any systematic review) that we did not retrieve all relevant studies. Second, all included studies have been conducted in North America, but this reflects the state of the existing research. Apart from the disproportionate geographical representation, the largest gap in the existing body of research relates to the limited depth in which the phenomenon of mentoring in academic medicine has been explored. In most of the included studies, authors performed a thematic analysis of mentoring experiences as reported by the participants, without providing a "thick" description of events and circumstances pertinent to mentoring, e.g., by doing an ethnographic study,[36] or to develop a comprehensive theory, e.g., by doing a grounded theory study.[37] This reduced our ability to gain a multifaceted and in-depth understanding of the mentoring relationship in academic medicine. Furthermore, it limited the level of conceptual innovation we could achieve in our systematic review.

Samples in the studies included in this systematic review had a balanced representation of male and female participants, majority and minority groups, as well as mentor and mentee perspective, thus providing a broad range of experiences. And our systematic review highlights areas for further qualitative research. Studies dealt mostly with the initiation and cultivation phases[38] of mentoring in academic medicine, whereas the separation and redefinition phases[38] were not well explored. These later stages in the life cycle of a mentoring relationship are important not only for the members of individual mentor-mentee dyad, but may also have broader consequences for the mentoring culture in academic medicine institutions. A more in-depth exploration of mentoring functions may be needed to inform the actions and interventions aimed to enhance mentoring. For example, the studies reported that mentors facilitated the mentee's visibility and exposure in the academic community. However, there were no research findings on how this is actually done, which actions and behaviors mentors perform to achieve this goal, and what the facilitators and barriers are in this process.

Mentoring in academic medicine is a complex phenomenon that affects the personal and professional lives of both mentor and mentee and implies a degree of intimacy that makes it resemble relationships with friends and family. Mentoring is inextricably situated in a social context and shaped by the institutional culture and climate. Successful mentoring therefore requires both commitment and interpersonal skills of mentor and mentee, and also a facilitating environment of the academic medicine's institutions. Academic institutions interested in developing mentorship strategies should respect the nature of mentoring relationships, which encompass professional, career-related and private aspects. Future research should focus more on the separation and redefinition phases of mentoring relationship and use a variety of qualitative methodologies and approaches to expand and deepen the body of knowledge about this important, yet elusive phenomenon.

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REFERENCES

1. **Kram KE.** Mentoring at work: developmental relationships in organizational life. Glenview, Il: Scott Foresman; 1985.
2. **Allen TD, Eby LT, Poteet ML, Lentz E, Lima L.** Career benefits associated with mentoring for protégés: a meta-analysis. J Appl Psycho. 2004;89:127–36.
3. **Underhill CM.** The effectiveness of mentoring programs in corporate settings: a meta-analytical review of the literature. J Vocat Behav. 2006;68:292–307.
4. **Hall JC.** Mentoring and young people: a literature review. Glasgow: University of Glasgow; 2003.
5. **Hansford BC, Ehrich LC, Tennent L.** Formal mentoring programs in education and other professions: a review of the literature. Educ Adm Q. 2004;40:518–40.
6. **Dorsey LE, Baker CM.** Mentoring undergraduate nursing students: assessing the state of the science. Nurse Educ. 2004;29:260–5.
7. International Working Party to Promote and Revitalise Academic Medicine. ICRAM (The International Campaign to Revitalise Academic Medicine): agenda setting. BMJ. 2004;329:787–9.
8. **Sambunjak D, Straus S, Marušić A.** Mentoring in academic medicine: a systematic review. JAMA. 2006;296:1103–15.

9. **Buddeberg-Fischer B, Herta KD.** Formal mentoring programmes for medical students and doctors—a review of the Medline literature. Med Teach. 2006;28:248–57.
10. Standing Committee on Post-graduate Medical and Dental Education. An enquiry into mentoring supporting doctors and dentists at work. London: SCOPME; 1998.
11. **Berk RA, Berg J, Mortimer R, Walton-Moss B, Yeo TP.** Measuring the effectiveness of faculty mentoring relationships. Acad Med. 2005;80:66–71.
12. **Bhagia J, Tinsley JA.** The mentoring partnership. Mayo Clin Proc. 2000;75:535–7.
13. **Rodenhauser P, Rudisill JR, Dvorak R.** Skills for mentors and protégés applicable to psychiatry. Acad Psychiatry. 2000;24:14–27.
14. **Detsky AS, Baerlocher MO.** Academic mentoring—how to give it and how to get it. JAMA. 2007;297:2134–6.
15. **Barondess JA.** On mentoring. J R Soc Med. 1997;90:347–9.
16. **Mishler EG.** Meaning in context: is there any other kind? Harv Educ Rev. 1979;49:1–19.
17. **Healy CC, Welchert AJ.** Mentoring relations: a definition to advance research and education. Educ Res. 1990;19:17–21.
18. **Jensen LA, Allen MN.** A synthesis of qualitative research on wellness-illness. Qual Health Res. 1994;4:349–68.
19. **Bondas T, Hall EOC.** Challenges in approaching metasynthesis research. Qual Health Res. 2007;17:113.
20. **Nicholas DB, Globerman J, Antle BJ, McNeill T, Lach LM.** Processes of metastudy: a study of psychosocial adaptation to childhood chronic health conditions. International journal of qualitative methods. 2006;5(1), Article 5. Retrieved: August 3rd 2009 from http://www.ualberta.ca/~iiqm/backissues/5_1/PDF/NICHOLAS.PDF (Accessed October 2009).
21. **Sandelowski M, Barroso J.** Handbook for synthesizing qualitative research. New York, NY: Springer; 2007.
22. **Bates MJ.** The design of browsing and berrypicking techniques for the online search interface. Online Rev. 1989;13:407–24.
23. **Benson CA, Morahan PS, Sachdeva AK, Richman RC.** Effective faculty preceptoring and mentoring during reorganization of an academic medical center. Med Teach. 2002;24:550–7.
24. **Hauer KE, Teherani A, Dechet A, Aagaard EM.** Medical students' perceptions of mentoring: a focus-group analysis. Med Teach. 2005;27:732–4.
25. **Jackson VA, Palepu A, Szalacha L, Caswell C, Carr PL, Inui T.** "Having the right chemistry": a qualitative study of mentoring in academic medicine. Acad Med. 2003;78:328–34.
26. **Koopman RJ, Thiedke CC.** Views of family medicine department Chairs about mentoring junior faculty. Med Teach. 2005;27:734–7.
27. **Leslie K, Lingard L, Whyte S.** Junior faculty experiences with informal mentoring. Med Teach. 2005;27:693–8.
28. **Morzinski JA, Dier S, Bower DJ, Simpson DE.** A descriptive, cross-sectional study of formal mentoring for faculty. Fam Med. 1996;28:434–8.
29. **Rabatin JS, Lipkin M, Rubin AS, Schachter A, Nathan M, Kalet A.** A year of mentoring in academic medicine: case report and qualitative analysis of 15 hours of meetings between a junior and senior faculty member. J Gen Intern Med. 2004;19:569–73.
30. **Williams LL, Levine JB, Malhotra S, Holtzheimer P.** The good-enough mentoring relationship. Acad Psychiatry. 2004;28:111–5.
31. **Straus SE, Chatur F, Taylor M.** Issues in the mentor-mentee relationship in academic medicine: qualitative study. Acad Med. 2009;84:135–9.
32. **Godshalk VM, Sosik JJ.** Mentoring and leadership. In: **Ragins BR, Kram KE, eds.** The handbook of mentoring at work: theory, research, and practice. Thousand Oaks (CA): Sage; 2007.
33. **D'Abate CP, Eddy ER, Tannenbaum SI.** What's in a name? A literature-based approach to understanding mentoring, coaching and constructs that describe developmental interactions. Human Resource Development Review. 2003;2:360–84.
34. **Townsend KC, McWhirter BT.** Connectedness: a review of the literature with implications for counseling, assessment and research. J Couns Dev. 2005;83:191–201.
35. **Eby LT.** Understanding relational problems in mentoring: a review and proposed investment model. In: **Kram KE, Ragins BR, eds.** The handbook of mentoring at work: theory, research, and practice. Los Angeles: Sage; 2007.
36. **Atkinson P, Pugsley L.** Making sense of ethnography and medical education. Med Educ. 2005;39:228–34.
37. **Kennedy TJ, Lingard LA.** Making sense of grounded theory in medical education. Med Educ. 2006;40:101–8.
38. **Kram KE.** Phases of the mentor relationship. Acad Manag J. 1983;26:608–25.