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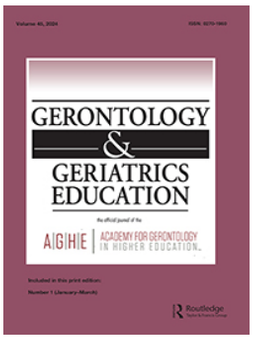

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Professional identity formation of medical students in relation to the care of older persons: a review of the literature

Annemarie Moll-Jongerius[a], Kirsten Langeveld[a], Wing Tong[a], Tahir Masud[b,c], Anneke W.M. Kramer[a], and Wilco P. Achterberg[a]

[a]Department of Public Health and Primary Care, Leiden University Medical Center, Leiden, The Netherlands; [b]Department of Health Care for Older People (HCOP), Queen's Medical Centre, Nottingham University Hospitals NHS Trust, Nottingham, UK; [c]Department of Geriatric Medicine, Odense University Hospital, Odense, Denmark

ABSTRACT

With the growing population of older persons, medical students have to be well prepared for older persons' health care during medical school. Becoming a doctor is an interplay of building competencies and developing a professional identity. Professional identity formation of medical students is a relatively new educational concept in geriatric medical education. This review aims to explore the concept of professional identity formation of undergraduate medical students in relation to the care of older persons. Twenty-three peer-reviewed studies were included and summarized narratively. Patient-centeredness, caring and compassion, collaboration and holistic care are characteristics of the doctor's professional identity in relation to the care of older persons. Participating in the context of older persons' health care contributes to the becoming of a doctor in general. In this context, the building of relationships with older persons, participating in their lives and role models are important influencers of professional identity formation. Furthermore, the perceptions and expectations medical students have of future doctoring influence their feelings about the care of older persons. To prepare medical students for older persons' health care, professional identity formation seems to be a relevant educational concept.

KEYWORDS

Professional identity formation; medical students; undergraduate medical education; older persons; geriatrics

Introduction

Worldwide, the population aged 65 years or above is expected to rise to 1.5 billion in 2050, an increase from 9.3% in 2020 to 16.0% in 2050. (United Nations Department of Economic and Social Affairs, 2020) Health problems in older age differ from those of younger patients and are characterized by multimorbidity, chronic illnesses, atypical presentations, psychosocial and functional problems, ethical dilemmas and increasing dependency. (Abdi, Spann, Borilovic, de Witte, & Hawley, 2019; Banerjee, 2015; Kogan, Wilber, & Mosqueda, 2016; Limpawattana, Phungoen, Mitsungnern, Laosuangkoon, & Tansangworn, 2016; Longino, 1997) With this growing population of older persons, future medical doctors will face these health-care challenges regardless of their chosen medical specialties. Educators in medical school, therefore, have to prepare all medical

CONTACT Annemarie Moll-Jongerius A.Moll-Jongerius@lumc.nl Department of Public Health and Primary Care, Leiden University Medical Center, Hippocratespad 21, Leiden 2333 ZD, The Netherlands

students for older persons' health care. (Leipzig et al., 2009; Oakley et al., 2014; Tullo, Spencer, & Allan, 2010) Prior research shows that medical students feel ill-prepared and uncomfortable in caring for older persons and find geriatric medicine too complex and challenging. (Meiboom, de Vries, Hertogh, & Scheele, 2015) Defined geriatric competencies and learning outcomes can facilitate medical educators in guiding medical students. (AGS, 2021; Core competencies for the care of older patients: recommendations of the American Geriatrics Society. The Education Committee Writing Group of the American Geriatrics Society, 2000; Leipzig et al., 2009; Masud et al., 2014; Pearson et al., 2023) Becoming a doctor, however, goes beyond building competencies and also requires the development of a professional identity. (Cruess, Cruess, & Steinert, 2019; Cruess, Cruess, Boudreau, Snell, & Steinert, 2014; Jarvis-Selinger, Pratt, & Regehr, 2012; Monrouxe, 2010)

This professional identity of a doctor is linked to the question "who am I as a doctor" and describes how doctors see themselves and how they want to be seen by others. (Cruess, Cruess, Boudreau, Snell, & Steinert, 2014; Helmich, Yeh, Kalet, & Al-Eraky, 2017; Monrouxe, 2010) Professional identity formation (PIF) is an ongoing process of becoming a member of the medical profession in which the characteristics, values and norms of this profession are internalized, gradually resulting in thinking, acting and feeling like a doctor. (Cruess, Cruess, & Steinert, 2018; Cruess, Cruess, Boudreau, Snell, & Steinert, 2014) PIF can be seen as the added stage of "being" on the top of the pyramid of Miller. (Cruess, Cruess, & Steinert, 2016) This pyramid describes the stages of "knowing," "knowing how," "showing how" and "doing" and is used to understand and assess teaching and learning. The stage of "doing" includes the integration of knowledge, skills and attitudes. (Stoof, Martens, van Merriënboer, & Bastiaens, 2002) PIF encompasses professional values, norms and beliefs. (Cruess, Cruess, & Steinert, 2016) Therefore, PIF influences and guides the "doing." (Jarvis-Selinger, Pratt, & Regehr, 2012; Monrouxe, 2010)

The development of a professional identity is mainly influenced by participation in a certain context through the process of socialization. (Cruess, Cruess, Boudreau, Snell, & Steinert, 2014, 2015; Jarvis-Selinger, Pratt, & Regehr, 2012; Monrouxe, 2010) Medical students develop their professional identity in the context of medical school and clinical practice. It is known that this context is mainly hospital- and disease-oriented with a strong focus on skills to diagnose and solve clinical problems. This type of orientation produces doctors who are mainly cure focused. (Fox, 1997; Longino, 1997; MacLeod, 2011; Monrouxe, 2009) The latter, however, is not always appropriate for the care of older persons, where cure is not necessarily the main aim, but rather the focus should often be on improving quality of life, relieving suffering and maintaining autonomy. (Abdi, Spann, Borilovic, de Witte, & Hawley, 2019; Banerjee, 2015; Kogan, Wilber, & Mosqueda, 2016; Limpawattana, Phungoen, Mitsungnern, Laosuangkoon, & Tansangworn, 2016; Longino, 1997) Purposefully, therefore, medical students should develop a professional identity that enables them to give older persons the health care they need.

From the literature we know that geriatric undergraduate medical education has developed over the years and geriatric competencies and learning outcomes have been defined. (Core competencies for the care of older patients: recommendations of the American Geriatrics Society. The Education Committee Writing Group of the American Geriatrics Society, 2000; Leipzig et al., 2009; Masud et al., 2014) Two reviews outlined the most important geriatric topics in existing curricula, the various teaching methods that are

used and interventions to improve geriatric competencies of undergraduate medical students. (Masud et al., 2022; Tullo, Spencer, & Allan, 2010) The concept of PIF, however, is not described in these reviews.

PIF of medical students is described as a major goal of medical education. (Cruess, Cruess, & Steinert, 2019) To prepare medical students for older persons' health care, it is essential that they develop an appropriate professional identity for the care of older persons. Medical educators should be aware of PIF as this will further enhance geriatric medical education. Since PIF is not described as an educational concept in the literature on undergraduate geriatric medical education, we explored the available literature, in our current systematic review with qualitative data synthesis, to focus on the research question: "what is known about PIF of undergraduate medical students in relation to the care of older persons?"

Methods and analysis

Search strategy

Given that knowledge on the concept of PIF of undergraduate medical students as an educational concept for geriatric medical education is scarce, we conducted a systematic review with qualitative data synthesis to explore this topic. In collaboration with a trained information specialist, a detailed search strategy was composed on the 21st of January 2022. The following databases were searched: PubMed, MEDLINE, Embase, Web of Science, Cochrane Library, EmCare, ERIC, Academic Search Premier and PsycINFO. The query consisted of the combination of terms related to "professional identity," "medical student" and "older person" (see Box 1).

Box 1. Query used for this review consisting of the combination of terms related to 'professional identity', 'medical student' and 'older person'.

Professional Identity	Medical Student	Older person
professional identity formation	medical student	aged
professional identity development	medical trainee	elderly
PIF	medical education undergraduate medical	geriatrics
social identification	medical school	gerontology
psychological identification	clerkship	nursing homes
becoming	apprenticeship	aged care facilities
identity		older person
professionalism		older patient
professional development		aging
career choice		older population
student interest		old age

Selection criteria

No restriction was made to the year of publication, language or design. Only peer-reviewed journal articles were selected. Publications that met the combination of the following criteria were included: (1) related to PIF or to PIF-related topics i.e. values, norms, beliefs, reflections or socialization; (2) related to undergraduate medical students or undergraduate medical education and (3) related to geriatric medicine or older persons. We excluded

studies that (1) did not relate to PIF or PIF-related topics; (2) were related to postgraduate medical education or other health-care students; (3) did not relate to geriatric medicine or older persons. References were scrutinized for additional publications, which were then checked for relevance using the same criteria.

Study selection

Three researchers (AM, KL and WT) independently screened all titles, abstracts and the full-text articles for inclusion. Disagreements were resolved through extensive discussion between them or if disagreement still persisted through the involvement of researcher AK.

Data synthesis

A thematic approach was used to synthesize the data. The three researchers (AM, WT and KL) read and analyzed the included articles on topics that were described as relevant to the PIF of undergraduate medical students in relation to the care of older persons. Together the researchers (AM, WT and KL) discussed these topics and identified major themes and subthemes relevant to the subject, which were approved by the other research team members (TM, AK and WA) and summarized narratively.

Results

The search generated 966 publications in total. The selection procedure allowed for the inclusion of 23 selected articles (see Figure 1). These articles were mainly from the Global North and most studies used qualitative research methods (17) or mixed-methods (5). One study used a quantitative method.

Almost half of the articles (10) described reflections of preclinical medical students, particularly on one-day experiences with older patients and in nursing attachments but also on a contact with one older patient over a longer period of time and a geriatric course. The other articles (13) described reflections of medical students in their clinical years, mainly on one-day experiences with older patients but also on experiences during an internal medicine clerkship, a geriatric clerkship, and a geriatric curriculum.

We identified three major themes in the articles: (1) characteristics of the doctor's professional identity in relation to the care of older persons; (2) the relevance of the care of older persons to the PIF of medical students and the care of all patients and (3) external factors in the context of the care of older persons that influence the PIF of medical students.

Characteristics of the doctor's professional identity in relation to the care of older persons

Patient-centeredness, *caring and compassion*, *collaboration*, and *holistic care* are mentioned as characteristics of the doctor who takes care of older persons. *A patient-centered* doctor is described as a doctor who sees the older patient as unique, as an expert of his or her life and as part of the health-care team. The patients' life experiences, perspectives and autonomy guide the doctors' decision-making in which the patients' views are respected and taken into account. (Davis et al., 2021; Denton et al.,

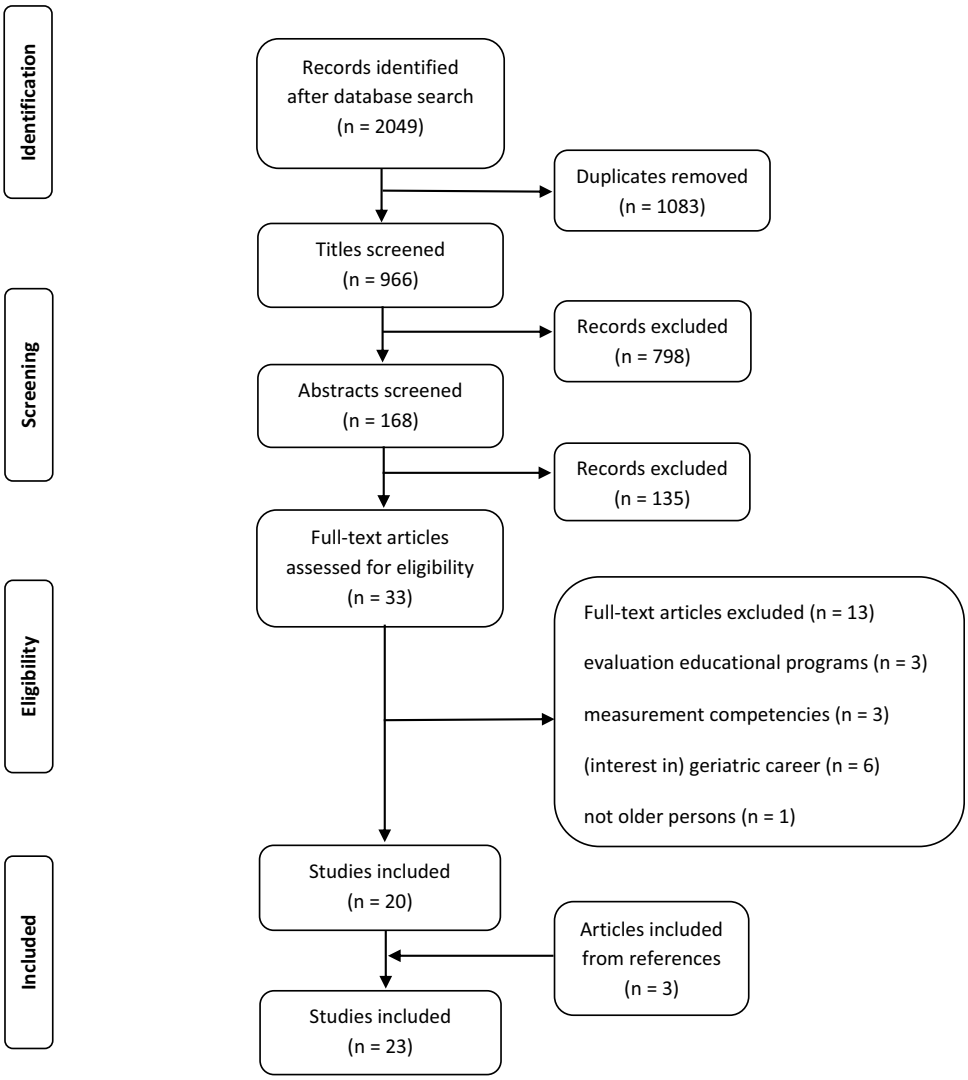

Figure 1. Flow-chart of studies selection.

2009; Helmich et al., 2010; van de Pol et al., 2018; Yoshimura, Saiki, Imafuku, Fujisaki, & Suzuki, 2020) In one study students emphasized the importance of listening to the story of the older patient and working together with this patient to provide care. They acknowledged that the patients' life experiences gained through living were helpful in the patients' understanding of their needs and expectations of healthcare. (Davis et al., 2021) The doctor who takes care of older patients is also described as *caring and compassionate* through taking time, having empathy and humanity. (Abbey, Willett, Selby-Penczak, & McKnight, 2010; Camp, Jeon-Slaughter, Johnson, & Sadler, 2018; Goldman & Trommer, 2019; Helmich, Bolhuis, Prins, Laan, & Koopmans, 2011; Strano-Paul, Lane, Lu, & Chandran, 2015; Wilson, Warmington, & Johansen, 2019; Yuen et al., 2006) Students who observed the doctor during home visits described the doctor as

dedicated and the doctor-and-patient interaction as genuine and personal. (Abbey, Willett, Selby-Penczak, & McKnight, 2010)

Furthermore, the ability to *give holistic care* is described as a characteristic of the doctor in relation to the care of older persons. To accomplish this, the doctor has to know the whole life of the patient, understand the impact of the disease and treatment on this life and must also be able to tailor the care to this life. (Goldman & Trommer, 2019; Jentoft, 2021; Yoshimura, Saiki, Imafuku, Fujisaki, & Suzuki, 2020; Yuen et al., 2006) After having contact with older patients at home during one day, medical students emphasized the importance of knowing the social context, the home environment and the family of the patient to give good care. (Yoshimura, Saiki, Imafuku, Fujisaki, & Suzuki, 2020; Yuen et al., 2006) Additionally, a doctor who is able to *collaborate* with other health-care professionals is described as essential in giving holistic care. Through teamwork and multidisciplinary thinking, different perspectives are taken into account resulting in care that is not only focused on the disease but also on functional and psychosocial needs. (Jentoft, 2021; Strano-Paul, Lane, Lu, & Chandran, 2015; Yoshimura, Saiki, Imafuku, Fujisaki, & Suzuki, 2020)

The relevance of the care of older persons to the PIF of medical students and the care of all patients

Several articles described the relevance of the participation of medical students in older persons' health care to graduating into a doctor in general. (Helmich et al., 2010; Huls, Rooij, Diepstraten, Koopmans, & Helmich, 2015; Shield, Farrell, Campbell, Nanda, & Wetle, 2015; Shield, Farrell, Nanda, Campbell, & Wetle, 2012) During a geriatric course in the first 2 years of medical school, medical students reflected on caring for older patients and their professional development. They shared that older patients have specific challenges, like hearing problems, complex conditions, fragility, limited mobility and end-of-life questions, which made them develop professional skills like physical examination, communication skills and interprofessional collaboration. They experienced a growing sense of confidence in becoming a doctor and shared that their interaction with older patients would benefit all their patients. (Shield, Farrell, Campbell, Nanda, & Wetle, 2015) Furthermore, the nursing home is described as a suitable context for medical students to develop patient-centered, collaborative and communication skills as well as empathetic behavior. (Helmich et al., 2010; Helmich, Bolhuis, Dornan, Laan, & Koopmans, 2012; Huls, Rooij, Diepstraten, Koopmans, & Helmich, 2015) During a geriatric clerkship in the nursing home, medical students experienced collaboration in a multidisciplinary team and shared they worked together with other health professionals more often than during other clerkships in the hospital. (Huls, Rooij, Diepstraten, Koopmans, & Helmich, 2015)

Besides these aspects, various research described that contact with older patients can elicit emotions. (Bagri & Tiberius, 2010; Goldman & Trommer, 2019; Strano-Paul, Lane, Lu, & Chandran, 2015; Wang, Swinton, & You, 2019; Wilson, Warmington, & Johansen, 2019) Medical students experienced sadness when watching the dementia progress of the patient they took care of. (Goldman & Trommer, 2019) In another study, the students were shocked by the death of a patient. (Yoshimura, Saiki, Imafuku, Fujisaki, & Suzuki, 2020) Acknowledgement of emotions by supervisors and role models can help medical students in dealing with such

feelings. This acknowledgment and the reflection on feelings and thoughts contribute to the becoming of a doctor in general. (Dornan, Pearson, Carson, Helmich, & Bundy, 2015)

External factors in the context of the care of older persons that influence the PIF of medical students

Various external factors in the context of the care of older persons are described as influencers of the PIF of medical students. These factors can be summarized by *being part of the life of the older patient*, *role models*, *the hidden curriculum*, and *perceptions and expectations*.

By *being part of the personal life* and living environment of the patient during home visits, medical students learn to know the older patient as a person, get to know the life of the patient and experience the impact of a disease or treatment on this life and the family. (Abbey, Willett, Selby-Penczak, & McKnight, 2010; Davis et al., 2021; Denton et al., 2009; Goldman & Trommer, 2019; Strano-Paul, Lane, Lu, & Chandran, 2015; Wilson, Warmington, & Johansen, 2019) In one study medical students observed the commitment and responsibility of caregivers during home visits. (Abbey, Willett, Selby-Penczak, & McKnight, 2010) *Role models* during educational courses, nursing attachments or clerkships are frequently mentioned as influencers for medical students' learning to become a doctor. (Farrell, Shield, Wetle, Nanda, & Campbell, 2013; Meiboom, de Vries, Hertogh, & Scheele, 2015; Shield, Farrell, Campbell, Nanda, & Wetle, 2015; Shield, Farrell, Nanda, Campbell, & Wetle, 2012; van de Pol et al., 2018; Wang, Swinton, & You, 2019; Wilson, Warmington, & Johansen, 2019) Medical students experienced nurses as positive role models during a nursing attachment. The nurses showed kindness, warmth and empathy to the patient. (Wilson, Warmington, & Johansen, 2019) Care-givers who showed disrespect, frustration, coldness and depersonalization during an internal medicine clerkship were seen as negative role models by the students. (Meiboom, de Vries, Hertogh, & Scheele, 2015; Wang, Swinton, & You, 2019)

Role models represent parts of the *hidden curriculum*. (Borgstrom, Cohn, & Barclay, 2010; Meiboom, de Vries, Hertogh, & Scheele, 2015; van de Pol et al., 2018; Wang, Swinton, & You, 2019) A hidden curriculum refers to the characteristics of an organization or culture that are taken for granted and is communicated through implicit beliefs, messages and expectations. (Hafferty & Franks, 1994) Implicit messages and approaches in relation to older persons will influence the perceptions medical students have of older patients. (Meiboom, de Vries, Hertogh, & Scheele, 2015) It is known that, with traditional training, medical students often perceive that becoming a doctor predominantly means saving lives and curing diseases. (van de Pol et al., 2018) They learn to appreciate diagnostic skills, acute complaints and visible results in the medical profession, which are less common characteristics in geriatrics. On the other hand, aspects of older persons' health care such as psychosocial, chronic and terminal conditions are experienced as being less attractive, boring and time consuming. (Bagri & Tiberius, 2010; Meiboom, de Vries, Soethout, Hertogh, & Scheele, 2018; van de Pol et al., 2018) These *perceptions and expectations* may negatively influence students' feelings and thoughts about what the care of older persons involves.

Discussion

PIF of medical students is a relatively new educational concept in geriatric medical education. In this review, we explore what is known in the literature about the development of a professional identity of undergraduate medical students in relation to the care of older persons. The majority of articles we have found are qualitative ones from the Global North. The results are particularly based on the experiences of medical students during one-day meetings with older patients or geriatric courses. Some studies described long-term experiences with older patients during a nursing attachment or clerkship. Our exploration gives an overview of the characteristics of the doctor who takes care of the older person. Furthermore, the results emphasize the relevance of caring for older persons to the PIF of medical students and outline the external influencers in the context of older persons' health care on this PIF.

The doctor who takes care of the older patient is characterized by compassion, patient-centeredness, collaboration and giving holistic and personal care. These characteristics are not only relevant to older persons' health care but also to the care of all patients, old and young. This suggests that the professional development of the medical student in the context of the care of older persons is applicable to all patients and relevant to the becoming of a doctor in general. In this context, the building of relationships with older persons, participating in their lives and role models are important influencers of PIF.

The hidden curriculum influences the expectations medical students have of future doctoring as well. The focus of medical school on saving lives and curing diseases can create negative feelings and thoughts about older persons' health care. Moreover, implicit messages and beliefs as a result of ageism among caregivers can induce negative perceptions, stereotypes and prejudices toward older persons in medical students. It is commonly known that age discrimination negatively impacts the health of older persons. (Mikton, de la Fuente-Núñez, Officer, & Krug, 2021)

Implications for medical education

Based on the results of this review, we propose three recommendations for medical education. First, we argue that suitable contexts are essential for medical students to develop an appropriate professional identity for older persons' health care. These contexts have to provide engagement in older persons' lives and reflect the values and norms of patient-centredness, holistic care, compassion and collaboration. Socialization in these contexts will help medical students to focus not only on cure but also on care and quality of life. (Cruess, Cruess, & Steinert, 2018; Cruess, Cruess, Boudreau, Snell, & Steinert, 2014, 2015; Jarvis-Selinger, MacNeil, Costello, Lee, & Holmes, 2019; Jarvis-Selinger, Pratt, & Regehr, 2012; Monrouxe, 2010; van de Pol et al., 2018) The nursing home and the care for older patients at home are described as such suitable contexts. (Helmich et al., 2010; Helmich, Bolhuis, Prins, Laan, & Koopmans, 2011; Huls, Rooij, Diepstraten, Koopmans, & Helmich, 2015; Kanter, 2012; Masud et al., 2022) We recommend that medical schools provide more and more mandatory clinical placements in these contexts.

Second, we want to emphasize that the development of a professional identity with a focus on care and quality of life is important to all patients. Participation of medical students in the context of older persons' health care contributes to the development of a competent and compassionate doctor in general. (Kanter, 2012;

Shield, Farrell, Campbell, Nanda, & Wetle, 2015; van de Pol et al., 2018) Therefore curriculum committees should be aware of the value of the learning opportunities of this context.

Furthermore, we realize that medical students have negative perceptions of older persons and experience geriatric medicine as boring, frustrating and complex. This can hinder an appropriate PIF in relation to the care of older persons. (Bagri & Tiberius, 2010; Cruess, Cruess, Boudreau, Snell, & Steinert, 2015; Higashi, Tillack, Steinman, Harper, & Johnston, 2012; Meiboom, de Vries, Hertogh, & Scheele, 2015) Ageism both in medical care and in the living environment of medical students contributes to these perceptions. Education and intergenerational contacts are described as effective interventions to reduce ageism, especially the combination of both interventions. (Burnes et al., 2019; Mikton, de la Fuente-Núñez, Officer, & Krug, 2021) As PIF encompasses professional values, norms and beliefs, we suggest that an appropriate PIF for the care of older persons might help medical students to feel more comfortable with geriatric medicine and reduce negative perceptions. (Cruess, Cruess, & Steinert, 2016; Jarvis-Selinger, Pratt, & Regehr, 2012; Monrouxe, 2010) Therefore, PIF has to be explicitly addressed as an educational objective in medical education. (Cruess, Cruess, & Steinert, 2018, 2019) Faculty development can facilitate medical educators to mentor medical students in this development, in which guided reflections on experiences, emotions and thoughts are essential to make PIF explicit and effective. (Cruess, Cruess, & Steinert, 2019; Cruess, Cruess, Boudreau, Snell, & Steinert, 2015)

Future research

In our opinion, PIF of undergraduate medical students in relation to the care of older persons is a relevant concept for medical education. To better understand this concept we suggest to explore this topic further. A future research area will be the experiences of medical students while caring for older persons over a longer period of time. Furthermore, we want to explore the perspectives of older persons and physicians in older persons' health care on PIF. In the end, we intend to develop educational interventions to encourage PIF of medical students in relation to the care of older persons and evaluate the effect of these interventions on this care. We hope that a better understanding can strengthen the position of geriatric medicine in curriculum development and can facilitate medical educators to help medical students develop an appropriate professional identity.

Limitations

Our review has several limitations. First, to explore the concept of PIF, we included all peer reviewed articles that met our inclusion criteria. We did not assess these articles on design. Second, we could have missed qualitative studies, which are not published in the databases we used. Furthermore, our findings are particularly based on one-day experiences of medical students with older patients. Literature on long-term experiences with older patients are scarce and mainly situated in the pre-clinical years of medical school. Finally, the majority of the included studies are from the Global North. As PIF is related to context, this may limit the generalizability of our findings to medical schools outside this region.

Conclusion

With the growing population of older persons, undergraduate medical students have to be well prepared for older persons' health care during medical school. Becoming a doctor is an interplay and accumulation of building competencies for practice, and developing a professional identity through the internalization of the values and norms of the medical profession. PIF of undergraduate medical students is a subject of significant interest in medical educational research and a relevant educational concept in preparing medical students for the care of older persons. The context of older persons' health care provides relevant learning opportunities for the becoming of a doctor in general.

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ORCID

Annemarie Moll-Jongerius http://orcid.org/0000-0003-1860-8578
Kirsten Langeveld http://orcid.org/0000-0003-0382-1931
Wing Tong http://orcid.org/0000-0002-5462-6012
Tahir Masud http://orcid.org/0000-0003-1061-2898
Anneke W.M. Kramer http://orcid.org/0000-0001-9423-8893
Wilco P. Achterberg http://orcid.org/0000-0001-9227-7135

Author contributions

AM contributed to the study design, literature search, data collection, data analysis, synthesis of the data and drafted the manuscript. KL and WT contributed to the study design, literature search, data collection, data analysis and interpretation of the data. TM, AK and WA contributed to the study design and interpretation of the data. All authors were involved in writing the manuscript and approved its final version for publication.

Data availability statement

The data that support the findings of this study are available from the corresponding author, AM, upon reasonable request.

References

Abbey, L., Willett, R., Selby-Penczak, R., & McKnight, R. (2010). Social learning: Medical student perceptions of geriatric house calls. *Gerontology & Geriatrics Education*, *31*(2), 149–162. doi:10.1080/02701961003795771

Abdi, S., Spann, A., Borilovic, J., de Witte, L., & Hawley, M. (2019). Understanding the care and support needs of older people: A scoping review and categorisation using the WHO international classification of functioning, disability and health framework (ICF). *BMC Geriatrics*, *19*(1), 195. doi:10.1186/s12877-019-1189-9

AGS. (2021). *Minimum Geriatric Competencies for Medical Students*. https://adgap.americangeriatrics.org/education-training/competencies/geriatrics-competencies-medical-students

Bagri, A. S., & Tiberius, R. (2010). Medical student perspectives on geriatrics and geriatric education. *Journal of the American Geriatrics Society*, *58*(10), 1994–1999. doi:10.1111/j.1532-5415.2010.03074.x

Banerjee, S. (2015). Multimorbidity–older adults need health care that can count past one. *The Lancet*, *385*(9968), 587–589. doi:10.1016/s0140-6736(14)61596-8

Borgstrom, E., Cohn, S., & Barclay, S. (2010). Medical professionalism: Conflicting Values for Tomorrow's Doctors [Article]. *Journal of General Internal Medicine*, *25*(12), 1330–1336. doi:10.1007/s11606-010-1485-8

Burnes, D., Sheppard, C., Henderson, C. R., Jr., Wassel, M., Cope, R., Barber, C., & Pillemer, K. (2019). Interventions to reduce ageism against older adults: A systematic review and meta-analysis. *American Journal of Public Health*, *109*(8), e1–9. doi:10.2105/ajph.2019.305123

Camp, M. E., Jeon-Slaughter, H., Johnson, A. E., & Sadler, J. Z. (2018). Medical student reflections on geriatrics: Moral distress, empathy, ethics and end of life. *Gerontology & Geriatrics Education*, *39*(2), 235–248. doi:10.1080/02701960.2017.1391804

Core competencies for the care of older patients: Recommendations of the American Geriatrics Society. The Education Committee Writing Group of the American Geriatrics Society. (2000). *Academic Medicine: Journal of the Association of American Medical Colleges*, *75*(3), 252–255. doi:10.1097/00001888-200003000-00014

Cruess, R. L., Cruess, S. R., Boudreau, J. D., Snell, L., & Steinert, Y. (2014). Reframing medical education to support professional identity formation. *Academic Medicine: Journal of the Association of American Medical Colleges*, *89*(11), 1446–1451. doi:10.1097/ACM.0000000000000427

Cruess, R. L., Cruess, S. R., Boudreau, J. D., Snell, L., & Steinert, Y. (2015). A schematic representation of the professional identity formation and socialization of medical students and residents: A guide for medical educators. *Academic Medicine: Journal of the Association of American Medical Colleges*, *90*(6), 718–725. doi:10.1097/acm.0000000000000700

Cruess, R. L., Cruess, S. R., & Steinert, Y. (2016). Amending miller's pyramid to include professional identity formation. *Academic Medicine: Journal of the Association of American Medical Colleges*, *91*(2), 180–185. doi:10.1097/acm.0000000000000913

Cruess, R. L., Cruess, S. R., & Steinert, Y. (2018). Medicine as a community of practice: Implications for medical education. *Academic Medicine: Journal of the Association of American Medical Colleges*, *93*(2), 185–191. doi:10.1097/acm.0000000000001826

Cruess, S. R., Cruess, R. L., & Steinert, Y. (2019). Supporting the development of a professional identity: General principles. *Medical Teacher*, *41*(6), 641–649. doi:10.1080/0142159x.2018.1536260

Davis, S. S., Regan, S., Goodnow, K., Gausvik, C., Pallerla, H., & Schlaudecker, J. D. (2021). TelL me your story: Experiential learning using in-home interviews of healthy older adults [Article]. *Journal of the American Geriatrics Society*, *69*(12), 3608–3616. doi:10.1111/jgs.17483

Denton, G. D., Rodriguez, R., Hemmer, P. A., Harder, J., Short, P., & Hanson, J. L. (2009). A prospective controlled trial of the influence of a geriatrics home visit program on medical student knowledge, skills, and attitudes towards care of the elderly. Article; Proceedings Paper *Journal of General Internal Medicine*, *24*(5), 599–605. doi:10.1007/s11606-009-0945-5

Dornan, T., Pearson, E., Carson, P., Helmich, E., & Bundy, C. (2015). Emotions and identity in the figured world of becoming a doctor. *Medical Education*, *49*(2), 174–185. doi:10.1111/medu.12587

Farrell, T. W., Shield, R. R., Wetle, T., Nanda, A., & Campbell, S. (2013). Preparing to care for an aging population: Medical student reflections on their clinical mentors within a new geriatrics curriculum. *Gerontology & Geriatrics Education*, *34*(4), 393–408. doi:10.1080/02701960.2013.830115

Fox, E. (1997). Predominance of the curative model of medical care. A residual problem. *JAMA*, *278* (9), 761–763. doi:10.1001/jama.1997.03550090085038

Goldman, J. S., & Trommer, A. E. (2019). A qualitative study of the impact of a dementia experiential learning project on pre-medical students: A friend for Rachel. *BMC Medical Education*, *19*(1), 127. doi:10.1186/s12909-019-1565-3

Hafferty, F. W., & Franks, R. (1994). The hidden curriculum, ethics teaching, and the structure of medical education [Review]. *Academic Medicine: Journal of the Association of American Medical Colleges*, *69*(11), 861–871. doi:10.1097/00001888-199411000-00001

Helmich, E., Bolhuis, S., Dornan, T., Laan, R., & Koopmans, R. (2012). Entering medical practice for the very first time: Emotional talk, meaning and identity development. *Medical Education*, *46*(11), 1074–1086. doi:10.1111/medu.12019

Helmich, E., Bolhuis, S., Prins, J., Laan, R., & Koopmans, R. (2011). Emotional learning of undergraduate medical students in an early nursing attachment in a hospital or nursing home. *Medical Teacher*, *33*(11), e593–601. doi:10.3109/0142159x.2011.610837

Helmich, E., Derksen, E., Prevoo, M., Laan, R., Bolhuis, S., & Koopmans, R. (2010). Medical students' professional identity development in an early nursing attachment. *Medical Education*, *44*(7), 674–682. doi:10.1111/j.1365-2923.2010.03710.x

Helmich, E., Yeh, H. M., Kalet, A., & Al-Eraky, M. (2017). Becoming a doctor in different cultures: Toward a cross-cultural approach to supporting professional identity formation in medicine. *Academic Medicine*, *92*(1), 58–62. doi:10.1097/ACM.0000000000001432

Higashi, R. T., Tillack, A. A., Steinman, M., Harper, M., & Johnston, C. B. (2012). Elder care as "frustrating" and "boring": Understanding the persistence of negative attitudes toward older patients among physicians-in-training. *Journal of Aging Studies*, *26*(4), 476–483. doi:10.1016/j.jaging.2012.06.007

Huls, M., Rooij, S. E., Diepstraten, A., Koopmans, R., & Helmich, E. (2015). Learning to care for older patients: Hospitals and nursing homes as learning environments [Article]. *Medical Education*, *49* (3), 332–339. doi:10.1111/medu.12646

Jarvis-Selinger, S., MacNeil, K. A., Costello, G. R. L., Lee, K., & Holmes, C. L. (2019). Understanding professional identity formation in early clerkship: a novel framework. *Academic Medicine: Journal of the Association of American Medical Colleges*, *94*(10), 1574–1580. doi:10.1097/acm.0000000000002835

Jarvis-Selinger, S., Pratt, D. D., & Regehr, G. (2012). Competency is not enough: Integrating identity formation into the medical education discourse. *Academic Medicine: Journal of the Association of American Medical Colleges*, *87*(9), 1185–1190. doi:10.1097/ACM.0b013e3182604968

Jentoft, R. (2021). Boundary-crossings among health students in interprofessional geropsychiatric outpatient practice: Collaboration with elderly people living at home [Article]. *Journal of Interprofessional Care*, *35*(3), 409–418. doi:10.1080/13561820.2020.1733501

Kanter, S. L. (2012). The nursing home as a core site for educating residents and medical students. *Academic Medicine*, *87*(5), 547–548. doi:10.1097/ACM.0b013e3182557445

Kogan, A. C., Wilber, K., & Mosqueda, L. (2016). Person-centered care for older adults with chronic conditions and functional impairment: A systematic literature review. *Journal of the American Geriatrics Society*, *64*(1), e1–7. doi:10.1111/jgs.13873

Leipzig, R. M., Granville, L., Simpson, D., Anderson, M. B., Sauvigné, K., & Soriano, R. P. (2009). Keeping granny safe on July 1: A consensus on minimum geriatrics competencies for graduating medical students. *Academic Medicine: Journal of the Association of American Medical Colleges*, *84* (5), 604–610. doi:10.1097/ACM.0b013e31819fab70

Limpawattana, P., Phungoen, P., Mitsungnern, T., Laosuangkoon, W., & Tansangworn, N. (2016). Atypical presentations of older adults at the emergency department and associated factors. *Archives of Gerontology and Geriatrics*, *62*, 97–102. doi:10.1016/j.archger.2015.08.016

Longino, C. F., Jr. (1997). Pressure from our aging population will broaden our understanding of medicine. *Academic Medicine: Journal of the Association of American Medical Colleges*, *72*(10), 841–847. doi:10.1097/00001888-199710000-00008

MacLeod, A. (2011). Caring, competence and professional identities in medical education. *Advances in Health Sciences Education: Theory and Practice*, *16*(3), 375–394. doi:10.1007/s10459-010-9269-9

Masud, T., Blundell, A., Gordon, A. L., Mulpeter, K., Roller, R., Singler, K. . . . Stuck, A. (2014). European undergraduate curriculum in geriatric medicine developed using an international modified Delphi technique. *Age and Ageing*, *43*(5), 695–702. doi:10.1093/ageing/afu019

Masud, T., Ogliari, G., Lunt, E., Blundell, A., Gordon, A. L., Roller-Wirnsberger, R. . . . Stuck, A. E. (2022). A scoping review of the changing landscape of geriatric medicine in undergraduate medical education: Curricula, topics and teaching methods. *European Geriatric Medicine*, *13*(3), 1–16. doi:10.1007/s41999-021-00595-0

Meiboom, A. A., de Vries, H., Hertogh, C. M., & Scheele, F. (2015). Why medical students do not choose a career in geriatrics: A systematic review. *BMC Medical Education*, *15*(1), 101. doi:10.1186/s12909-015-0384-4

Meiboom, A. A., de Vries, H., Soethout, M. B. M., Hertogh, C., & Scheele, F. (2018). A career in elderly care medicine; an option for today's medical student?: Medical students' interest in elderly care medicine. *Tijdschrift voor gerontologie en geriatrie*, *49*(4), 139–146. doi:10.1007/s12439-018-0255-7

Mikton, C., de la Fuente-Núñez, V., Officer, A., & Krug, E. (2021). Ageism: A social determinant of health that has come of age. *The Lancet*, *397*(10282), 1333–1334. doi:10.1016/s0140-6736(21)00524-9

Monrouxe, L. (2009). Negotiating professional identities: Dominant and contesting narratives in medical students' longitudinal audio diaries. *Current Narratives*, *1*, 41–59.

Monrouxe, L. V. (2010). Identity, identification and medical education: Why should we care? *Medical Education*, *44*(1), 40–49. doi:10.1111/j.1365-2923.2009.03440.x

Oakley, R., Pattinson, J., Goldberg, S., Daunt, L., Samra, R., Masud, T. . . . Gordon, A. L. (2014). Equipping tomorrow's doctors for the patients of today. *Age and Ageing*, *43*(4), 442–447. doi:10.1093/ageing/afu077

Pearson, G. M. E., Winter, R., Blundell, A., Masud, T., Gough, J., Gordon, A. L., & Henderson, E. J. (2023). Updating the British Geriatrics Society recommended undergraduate curriculum in geriatric medicine: A curriculum mapping and nominal group technique study. *Age and Ageing*, *52*(2). doi:10.1093/ageing/afac325

Shield, R. R., Farrell, T. W., Campbell, S. E., Nanda, A., & Wetle, T. (2015). Professional development and exposure to geriatrics: Medical student perspectives from narrative journals. *Gerontology & Geriatrics Education*, *36*(2), 144–160. doi:10.1080/02701960.2014.954043

Shield, R. R., Farrell, T. W., Nanda, A., Campbell, S. E., & Wetle, T. (2012). Integrating geriatrics into medical school: Student journaling as an innovative strategy for evaluating curriculum. *The Gerontologist*, *52*(1), 98–110. doi:10.1093/geront/gnr079

Stoof, A., Martens, R. L., van Merriënboer, J. J. G., & Bastiaens, T. J. (2002). The boundary approach of competence: A constructivist aid for understanding and using the concept of competence. *Human Resource Development Review*, *1*(3), 345–365. doi:10.1177/1534484302013005

Strano-Paul, L., Lane, S., Lu, W. H., & Chandran, L. (2015). Impact of a home hospice visit program on third-year medical students: A qualitative analysis of student reflections. *Journal of Palliative Care*, *31*(1), 5–12. doi:10.1177/082585971503100102

Tullo, E. S., Spencer, J., & Allan, L. (2010). Systematic review: Helping the young to understand the old. Teaching interventions in geriatrics to improve the knowledge, skills, and attitudes of undergraduate medical students. *Journal of the American Geriatrics Society*, *58*(10), 1987–1993. doi:10.1111/j.1532-5415.2010.03072.x

United Nations Department of Economic and Social Affairs. (2020). World population ageing 2020 highlights. Living arrangements of older persons.

van de Pol, M. H. J., Lagro, J., Koopman, E. L., Olde Rikkert, M. G. M., Fluit, C., & Lagro-Janssen, A. L. M. (2018). Lessons learned from narrative feedback of students on a geriatric training program. *Gerontology & Geriatrics Education*, *39*(1), 21–34. doi:10.1080/02701960.2015.1127810

Wang, X. M., Swinton, M., & You, J. J. (2019). Medical students' experiences with goals of care discussions and their impact on professional identity formation. *Medical Education*, *53*(12), 1230–1242. doi:10.1111/medu.14006

Wilson, H., Warmington, S., & Johansen, M. L. (2019). Experience-based learning: Junior medical students' reflections on end-of-life care. *Medical Education*, *53*(7), 687–697. doi:10.1111/medu.13907

Yoshimura, M., Saiki, T., Imafuku, R., Fujisaki, K., & Suzuki, Y. (2020). Experiential learning of overnight home care by medical trainees for professional development: An exploratory study. *International Journal of Medical Education*, *11*, 146–154. doi:10.5116/ijme.5f01.c78f

Yuen, J. K., Breckman, R., Adelman, R. D., Capello, C. F., LoFaso, V., & Reid, M. C. (2006). Reflections of medical students on visiting chronically ill older patients in the home. *Journal of the American Geriatrics Society*, *54*(11), 1778–1783. doi:10.1111/j.1532-5415.2006.00918.x