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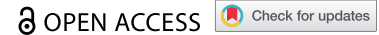


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ARTICLE



## Stereotypes of experienced health professionals in an interprofessional context: results from a cross-sectional survey in Germany

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### ABSTRACT

Interprofessional teamwork often suffers from the existence of negative stereotypes. To combat their prevalence, interprofessional education (IPE) activities are being implemented worldwide. The aim of this study is to inform IPE developers of the prevalence and content of interprofessional stereotypes in the workplace in Germany and similarly structured healthcare systems. We surveyed health professionals with several years of work experience as nurse, midwife, or therapist concerning their attitudes toward their own professions and those of doctors using an established trait rating measure and a qualitative approach. Stereotypes of respondents ( $N = 129$ ) were mostly related to (1) academic, medical competence (being perceived as lower than that of doctors) and (2) the traditional role relationship (strict hierarchy, dependence on doctors) that guides a lot of behavior, such as the little participation of nurses, midwives and therapists. Despite profound structural differences in the education and healthcare systems, our analyses further revealed similar topics for further IPE activities as in international research, such as the general demand to convey knowledge about the roles, skills and responsibilities of the other professions. The demand to improve the teamwork skills of all health professionals and empower them to be full and equal members of the healthcare team was also evident. Thus, a more reflective approach to stereotypes and their impact on interprofessional teamwork is indicated, particularly in workplace-based interprofessional learning activities. More generally, to counteract stereotypes a more widespread adoption of IPE in pre and post licensure health professions education and continuing professional development in Germany is needed.

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Stereotypes; attitudes; contact hypothesis; work experience; working conditions; health professionals; nurses; midwives; therapists; interprofessional education

### Introduction

Interprofessional collaboration is seen as essential for providing safe, patient-centered, efficient and high-quality care in and across all health and social care settings (World Health Organization, 2010). The aging of our society, the increase in chronic diseases and multi-morbidity, combined with rapidly advancing treatment options and technical or scientific developments, call for more complex care concepts. These often rely on team-based patient care, which regularly requires close collaboration between several providers with different professional backgrounds (Balogh et al., 2015; Thistlethwaite, 2012). However, interprofessional teamwork often suffers from the fact that stereotypes among the different professional groups exist (Carpenter, 1995; Lewitt et al., 2010), which may contribute to poor communication and hinder trusting collaborations, resulting in quality deficiencies and, above all, a risk to patient safety (Leonard et al., 2004; Ryan & McKenna, 1994; Weaver et al., 2013; Weller et al., 2014).

Stereotypes are difficult to change and often persist through training into clinical practice (Hean, Clark, Adams, Humphris et al., 2006). One means to combat the prevalence of stereotypes is interprofessional education (IPE) (World Health Organization, 2010), during which various health and social care professionals come together during their undergraduate

education to learn “with, from, and about each other” (Centre for the Advancement of Interprofessional Education, 2002). An increasing number of studies provides evidence for the potential of IPE to change stereotypes (Barr et al., 1999; Lapkin et al., 2013; White et al., 2019; World Health Organization, 2010). However, evidence remains ambiguous (Friend et al., 2016; Hammick et al., 2007; Michalec et al., 2013; Reeves et al., 2013) one reason possibly being that the theoretical and empirical underpinning of IPE development is still limited (Cooper et al., 2001; Hean & Dickinson, 2005). For example, relatively little is known on the stereotypes among health professionals with several years of work experience in the workplace, because most studies on interprofessional stereotypes focus on students in undergraduate programmes, and thus insights are limited into which stereotypes are particularly persistent and therefore should be focused on during IPE activities. In addition, a fine-grained picture of the content of stereotypes is lacking due to the predominant use of quantitative trait measures containing a limited number of attributes (Barnes et al., 2000; Cook & Stoecker, 2014; Hean, Clark, Adams, Humphris et al., 2006; Hind et al., 2003).

In order to counter these shortcomings and to make IPE activities more effective, a more comprehensive evidence base for the spread of stereotypes in the workplace, their interrelationships with working conditions and a more differentiated

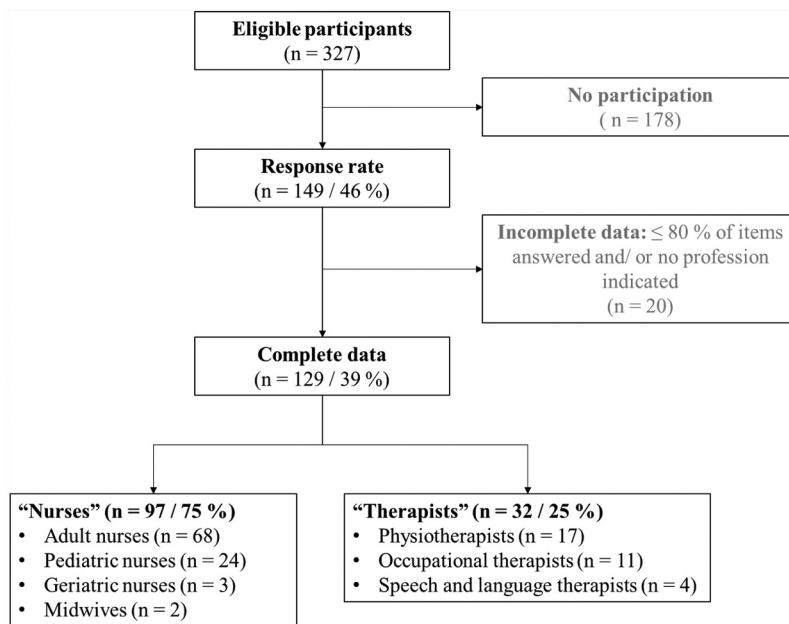
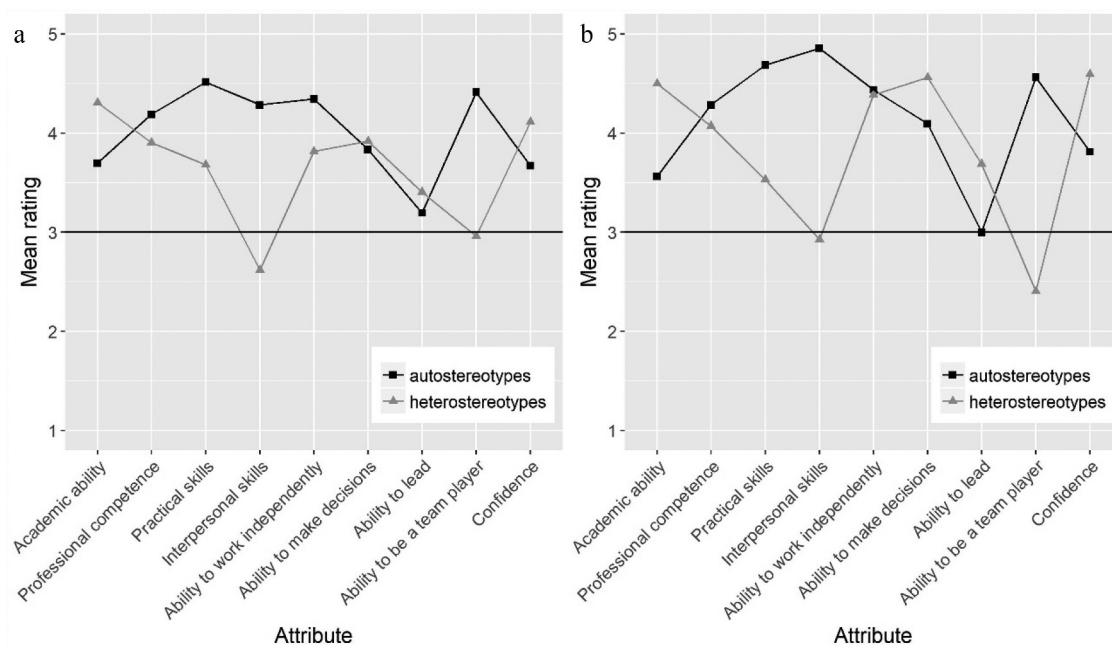


Figure 1. Flowchart of participation rates.



5.4. Auto- vs. heterostereotype profiles of (A) “nurses” and (B) “therapists”.

picture of their content are required. Addressing these research gaps was the main goal of our study. Relevant studies on this topic have so far been carried out predominantly in Anglo-American countries where the educational and health systems differ structurally and culturally significantly from those in German-speaking countries. Therefore, our results may be particularly interesting for IPE developers in German-speaking countries, like Germany, Switzerland and Austria. At the same

time, they can be used by international readers to expand and contrast their knowledge base on the subject.

### Background

Stereotypes are shared beliefs about attributes of people based on their respective group membership (Turner, 1999). Stereotyping is an automatic process one cannot prevent

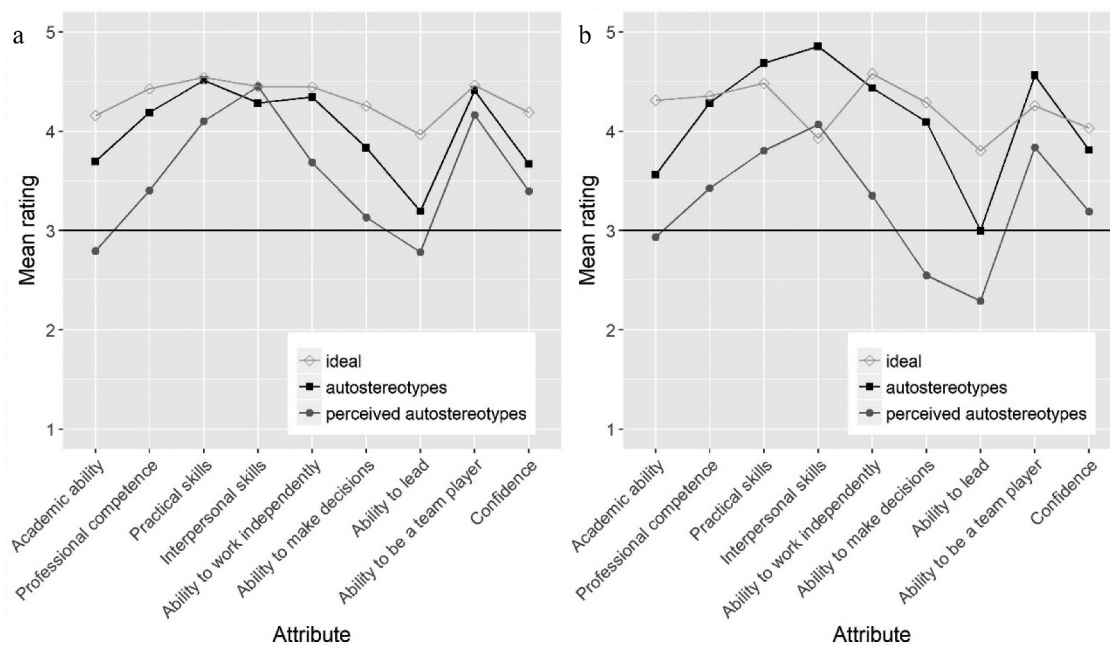


Figure 3. Perceived autostereotype profiles vs. autostereotypes vs. ideal of (A) “nurses” and (B) “therapists”.

(Haslam et al., 2002), with both positive and negative consequences. Whereas correct stereotypes may ease communication and collaboration by providing appropriate expectations of another person’s attitudes, skills or behaviors immediately and effortlessly (Carpenter, 1995; Carpenter & Hewstone, 1996; Haslam et al., 2002), incorrect or negative stereotypes may impede intergroup coordination (Hilton & Von Hippel, 1996; Thomson et al., 2015). Doctors, for example, who associate nurses with being low in clinical competence (Cook & Stoecker, 2014; Hean, Clark, Adams, Humphris et al., 2006) (heterostereotypes) may tend to ignore nurses’ suggestions, questions or information during the ward round, to the detriment of the patient (Kolbe et al., 2012). Similarly, nurses may hesitate to speak up if they feel intimidated by this stereotype against themselves (Hilton & Von Hippel, 1996) (perceived autostereotypes) or if they believe their knowledge is indeed inferior (autostereotypes).

According to Allport’s contact hypothesis (Allport, 1954), reducing stereotypes can be achieved by bringing different groups in contact with one another, while ensuring that specific conditions are met, such that groups have equal status in the contact situation, work in pursuit of common goals, meet within a collaborative atmosphere and are supported at an institutional level (Pettigrew & Tropp, 2005). Following this theoretical perspective, IPE activities have been implemented worldwide (Hean & Dickinson, 2005). Their goal is to support the early acquisition of knowledge among professionals about each other’s roles and expertise, combat the prevalence of stereotypes and train effective team behavior to enhance future working together (Thistlethwaite, 2012; World Health Organization, 2010).

Though much later than Canada (Paradis & Reeves, 2013), the UK (Barr, 2015) or Sweden (Barr, 2015), for example, the German-speaking countries (Germany, Austria and

Switzerland) have also started a number of IPE initiatives, predominantly in the context of medical faculties (Ewers & Walkenhorst, 2019). Whether the development of IPE in these countries can be based on international experiences and empirical research is an open question due to the profound structural differences in the education and healthcare systems (Wild & Ewers, 2017). The healthcare system in Germany, for example, is still characterized by traditional hierarchies, with doctors holding structural power over most of the other health professionals (Busse & Blümel, 2014; Zander-Jentsch et al., 2019). Physicians are educated at universities and belong to an independent, self-regulated profession. In contrast, nurses, midwives and therapists are still trained predominantly in traditional vocational and mostly hospital-based schools on the secondary level outside the public education system (Praxmarer-Fernande et al., 2017). Their scope of practice is not legally secured, and, in most cases, they lack independent decision-making powers, which is exacerbated by their low level of professional organization (for example, in the form of chambers or professional interest groups). In addition, there are great differences in the socioeconomic background, career opportunities and social status of the different professional groups (Ewers & Schaeffer, 2019) despite the fact that some nurses, midwives and therapists later take up university studies for continuing education. These structural features have far-reaching effects on the collaboration of health professionals in everyday clinical practice (Altin et al., 2014; Ewers & Schaeffer, 2019; Ognyanova et al., 2014; Schlette et al., 2009).

### Aim and research questions

We strive with our survey study to inform IPE developers of the prevalence and content of interprofessional stereotypes in the workplace in Germany and similarly structured healthcare

systems. Revealing similar stereotypes irrespective of different systems would enable IPE developers in Germany and similarly structured healthcare systems to transfer international insights without the need for extensive adaptations – and vice versa. By contrast, if we were to reveal more differences than parallels, this would speak to the need to be more cautious when building on experience with IPE in differently structured health and education systems.

Specifically, we pose 3 research questions, which we address in our survey study with health professionals with a vocational training in nursing, midwifery or in physical, occupational or speech and language therapy, who had gained several years of working experience before and during their studies:

(1) What attitudes do experienced nurses, midwives and therapists have toward their own profession (i.e. autostereotypes) and that of doctors (i.e. heterostereotypes) (Carpenter, 1995; Hind et al., 2003)? Identifying attributes for which there is a lot of differentiation between groups may help IPE developers adjust students' ratings of these attributes to reflect reality rather than stereotypes (Hean, Clark, Adams, Humphris et al., 2006).

(2) How do their *perceived* autostereotypes relate to (a) their autostereotypes and (b) their ideal view (i.e. how professionals wish to be seen by others)? We argue that large discrepancies between these perspectives are likely to cause work dissatisfaction and lead to misunderstandings. (c) How do relevant contact conditions, as identified by Allport (Allport, 1954), relate to the prevalence of stereotypes? We expect that perceived misconceptions go hand in hand with poorer working conditions (Pettigrew & Tropp, 2006).

(3) How would they describe typical stereotypes toward them and what are their experiences with working in interprofessional teams? We wanted to complement the rather limited range of relevant attributes collected with the previous approaches by exploring the most prevalent categories among free statements and examples given.

## Method

### Eligible participants

All students enrolled in the Bachelor program *Health Sciences* and the Master program *Health Professions Education* at the Charité-Universitätsmedizin Berlin in 2019 were eligible participants for the present study ( $N = 327$ ). As an admission requirement for these programs, all students had to have completed a vocational training in nursing (e.g., pediatric nursing, adult nursing, geriatric nursing), midwifery or in physical, occupational or speech and language therapy and gained at least some professional experience. Due to the small number of midwives enrolled, they will be considered below together with the nursing staff (hereafter clustered as “nurses”). The three therapeutic professions will also be combined into one group (hereafter: “therapists”).

Participants were recruited through electronic messaging. Participation was voluntary and uncompensated. Participants could opt in to enter a draw for one of eight gifts of € 14.

### Measures

The study consisted of a 15-min on-line questionnaire (created with SoSci Survey, Germany) that was completed independently, anonymously and at the participant's leisure. The survey asked participants to reflect on their encounters with doctors during their current (or, if not applicable, last) employment in the healthcare sector. The questionnaire contained the following measures.

### Working conditions

This section contained one item concerning the frequency of contact with doctors (1: *daily*, 2: *weekly*, 3: *monthly*, 4: *less than 1/month*) and one item concerning the type of encounter with doctors (e.g., when planning a therapy). Additionally, the section contained 11 items capturing different aspects of the quality of working relations with doctors (6-point Likert-scale, 1: *not at all*, 6: *completely*, see Table S1), such as whether there is usually a cooperative atmosphere, successful joint work or respectful collaboration. These items were self-generated following Barnes et al.'s (Barnes et al., 2000) list of relevant intergroup variables and based on contact hypothesis (Allport, 1954). Items were coded such that high values represent a high quality of working relations. Participants were asked whether they perceived status differences between their professional group and that of doctors (1 item, 6-point scale, 1: *not at all*, 6: *large*) and, if existent, how they evaluated these (1 item, 6-point scale, 1: *impairing*, 6: *beneficial*). These 2 items were self-generated following Barnes et al.'s (Barnes et al., 2000) finding that perceived status differences exist among different health professionals.

### Stereotypes

This section consisted of the *Student Stereotype Rating Questionnaire (SSRQ)* (Barnes et al., 2000; Hean, Clark, Adams, Humphris et al., 2006). The SSRQ belongs to the trait rating measures (Correll et al., 2010) and asks participants to rate a target group on the following nine attributes, using a 5-point Likert-scale (1: *low*, 5: *high*): academic ability, professional competence, practical skills, interpersonal skills, ability to work independently, ability to make decisions, ability to lead, ability to be a team player and confidence. Participants were required to rate the extent to which these 9 attributes applied to (1) their own professional group (autostereotypes), (2) doctors (heterostereotypes), (3) their own professional group as seen by doctors (perceived autostereotypes) and (4) their own professional group as it *should* be seen by doctors (ideal). Due to technical failures, the answers to two of the nine attributes (professional competence, interpersonal skills) were saved for only half of the participants.

### Open questions

In this section, participants were asked to reflect on (1) the role their profession plays in interprofessional teams (Lidskog et al., 2008), (2) the stereotypes of doctors against their professional groups and (3) the most important reasons for difficulties during collaboration (Rudland & Mires, 2005).



## Demography

Participants were asked to indicate their age group (5-year intervals starting from 20 years), gender, years of working experience, professional background, type of current employment status (*employed* or *self-employed* or *both*), and specialty (open answer). The strength of professional identity was assessed with the 10-item *Professional Identity Scale* (Brown et al., 1986) using a 5-point Likert-scale (1: *never*, 5; *very frequently*), an example item being, “I am a person who considers my own professional group important,” with higher values indicating stronger professional identification.

## Data analysis

Data were analyzed with R Core Team (2020) and IBM SPSS v24.0. Independent sample t-tests were conducted, for which we report Cohen’s *d* effect sizes, with  $d = 0.2$  being considered a small,  $d = 0.5$  a medium, and  $d = 0.8$  a large effect (Cohen, 1988). The mean ratings per professional group (“nurses” vs. “therapists”) for each attribute and perspective (auto-, hetero-stereotypes, perceived autostereotypes and ideal) were calculated and displayed to answer research questions 1 (i.e. attitudes toward own profession and that of doctors) and 2a and 2b (i.e. relationship between perceived autostereotypes and autostereotypes and ideal, respectively). A 2-by-4 mixed-design ANOVA with profession as the between-subject variable and perspective as the within-subject variable, as well as planned contrasts, were conducted per attribute, respectively. Special attention will be directed to results with large effect sizes (with  $\eta_p^2 \geq 0.14$  Cohen, 1988). To address research question 2 c (i.e. relationship between working conditions and stereotypes), Pearson’s correlations between the mean ratings on the working relation scale and the difference between autostereotype and perceived autostereotype ratings were run. To address research question 3 (i.e. descriptions of typical stereotypes and experiences with interprofessional teamwork), we inspected 30% of the open answers and derived categories that captured all statements in a subsequent categorization process.

The data that support the findings of this study are openly available in OSF at [https://osf.io/6k7vn/?view\\_only=8374aefb8c48483d8f9425387d28f7a1](https://osf.io/6k7vn/?view_only=8374aefb8c48483d8f9425387d28f7a1).

## Ethics

The study was approved by the Institutional Review Board at the Charité-Universitätsmedizin Berlin (EA1/200/19).

Completion of the on-line questionnaire was taken as an expression of consent to participate. Participants were informed about the data protection means undertaken (anonymous participation).

## Results

### Sample

A total of  $N = 149$  participants (46% of 327 eligible students) filled in the questionnaire, of whom 20 provided incomplete data (i.e. provided answers to fewer than/equal to 80% of items and/or did not indicate their profession; see Figure 1) and were, therefore, removed. The final sample consisted of 129 participants (84% females, mode age category 25–29 years). A total of  $N = 97$  (75%) belonged to the group of “nurses” and  $N = 32$  (25%) to the group of “therapists” (see Table 1 for demographics per profession). Nurses and midwives had an average of 7.5 years of working experience ( $SD = 5.1$ ) and “therapists” 6.4 years of working experience ( $SD = 4.43$ ),  $t(126) = 1.130$ ,  $p = .261$ .

### Professional identification

The Professional Identity Scale had a high internal consistency (Cronbach’s  $\alpha = .81$ ). “Nurses” and “therapists” identified equally strongly with their professional group ( $M_{\text{nurses}} = 3.94$ ,  $SD = 0.52$  vs.  $M_{\text{therapists}} = 3.84$ ,  $SD = 0.56$ , on the 5-point scale),  $t(127) = 0.896$ ,  $p = .372$ .

### Frequency and quality of working relations with doctors

Most “nurses” (78.4%) reported daily contact with doctors, while the majority of “therapists” (65.7%) reported weekly to monthly contact (see Table 1). “Nurses” reported having rather positive working relations with doctors ( $M = 4.19$ ,  $SD = 0.93$ , on a 6-point scale), whereas “therapists” reported only moderate relations ( $M = 3.53$ ,  $SD = 0.88$ ),  $t(127) = 3.561$ ,  $p < .001$ ,  $d = 0.74$  (see Table S1 for results on an item level). “Nurses” perceived smaller status differences between their professional group and doctors than “therapists” did ( $M_{\text{nurses}} = 4.41$ ,  $SD = 1.34$  vs.  $M_{\text{therapists}} = 4.97$ ,  $SD = 1.00$ , on a 6-point scale),  $t(127) = -2.151$ ,  $p = .033$ ,  $d = 0.47$ . Those who indicated to perceive status differences ( $N = 103$ ) evaluated them as rather impairing without any differences between “nurses” and “therapists” ( $M_{\text{nurses}} = 2.08$ ,  $SD = 0.96$  vs.  $M_{\text{therapists}} = 1.78$ ,  $SD = 0.89$ ),  $t(101) = 1.423$ ,  $p = .158$ .

Table 1. Participant demographics.

	“Nurses”	“Therapists”
<b>n</b>	97	32
<b>Age category</b>		
mode	25–29 years	25–29 years
range	20–54 years	25–44 years
<b>Gender</b>		
% females	84.5	81.3
<b>Frequency of contact with doctors (%)</b>		
daily	78.4	15.6
weekly	12.4	34.4
monthly	7.2	31.3
< monthly	2.1	15.6

## Stereotypes

### Autostereotypes and heterostereotypes of “nurses” and “therapists”

Figure 2 shows that participants described quite different spheres of competence regarding their own profession and that of doctors: The 3 attributes where “nurses” (Figure 2A) agreed mostly with their own profession (autostereotypes) were practical skills, the ability to work independently and being a team player. The 3 attributes where “therapists” (Figure 2B) agreed mostly with their own profession were practical and interpersonal skills and being a team player. By contrast, the 3 attributes where “nurses” (Figure 2A) and “therapists” (Figure 2B) alike agreed mostly with doctors (heterostereotypes) were academic ability, confidence and the ability to make decisions.

For 8 of the 9 attributes, the ANOVAs did not reveal any main effect of profession (all  $p > .202$ ; see Table S2). Only concerning the ability to be a team player, a main effect was revealed,  $F(3, 363) = 3.712$ ,  $p = .012$ ,  $\eta_p^2 = .030$ , which was qualified by an interaction,  $F(1, 121) = 5.474$ ,  $p = .021$ ,  $\eta_p(2015) = .043$ .

The planned contrasts revealed a number of differences with large effect sizes between autostereotypes and heterostereotypes: “Nurses” and “therapists” alike rated doctors higher on academic ability,  $F(1, 23) = 72.608$ ,  $p < .001$ ,  $\eta_p(2015) = .371$ , and confidence,  $F(1, 122) = 23.707$ ,  $p < .001$ ,  $\eta_p(2015) = .163$ , than their own professions, whereas they gave their own professions higher ratings on practical,  $F(1, 122) = 81.719$ ,  $p < .001$ ,  $\eta_p(2015) = .401$ , and interpersonal skills,  $F(1, 54) = 140.234$ ,  $p < .001$ ,  $\eta_p(2015) = .722$ , and the ability to be a team player (with “therapists” reporting larger differences than “nurses”,  $F(1, 121) = 10.205$ ,  $p = .002$ ,  $\eta_p(2015) = .078$ , see Figure 2B vs. 2A). Indeed, doctors even received moderate to negative (i.e. ratings below 3, the neutral point between 1: *very low* and 5: *very high*) evaluations on the latter two attributes.

### Relationship between perceived autostereotypes and autostereotypes

The planned contrasts revealed that “nurses” and “therapists” alike thought they would receive lower ratings by doctors than they gave themselves for 5 attributes, namely academic ability, professional competence, practical skills, the ability to lead and confidence, all  $p < .001$  and  $\eta_p(\text{et al., 2015}) > .154$  (see Figure 3A and 3B, and Table S2). For the remaining 4 attributes, interaction effects were revealed, all  $p < .047$  and  $\eta_p(\text{et al., 2015}) > .032$ : As can be seen when comparing Figure 3A with Figure 3B, therapists perceived larger discrepancies between autostereotypes and perceived autostereotypes for interpersonal skills, the ability to work independently, to make decisions and to lead, where nurses perceived smaller or even no discrepancies (i.e. interpersonal skills).

**Relationship between perceived autostereotypes and the ideal.** Except for interpersonal skills, “nurses” and “therapists” alike wished to be seen more positively than they believed to be currently perceived by doctors, all  $p < .001$  and  $\eta_p(\text{et al., 2015}) > .172$  (see Figure 3A and 3B, and Table S2). An interaction qualified the main effect for the ability to make decisions,

indicating that “therapists” wanted a larger increase in other-ratings,  $F(1, 121) = 6.331$ ,  $p = .013$ ,  $\eta_p(\text{et al., 2015}) = .050$ .

### Analyses of open answers

The answers to the open questions were analyzed in terms of how frequently certain issues were raised, with the following picture emerging: A total of 113 participants (88%) gave 427 comments to the question regarding which reasons they identified for difficulties in collaborating with doctors. Of the 402 comments categorized (see Table S3), structural/system-related issues, such as the decisional power of doctors, strict hierarchy, lack of time and stress dominated (177 comments in sum); stereotypes and a lack of knowledge about each other’s roles, skills and responsibilities were named second (78 comments). Other reasons named were communication problems (43 comments), problematic traits of doctors (22 comments) or a lack of appreciation of each other (15 comments).

A total of 96 participants (74%) gave 286 comments to the question regarding which typical stereotypes doctors would hold against their professional group (see Table 3). Of the 254 comments categorized, most were concerned with being confronted with an oversimplification of the roles, responsibilities and skills their profession possesses and being attributed with certain (negative) traits (98 comments). Secondly, participants reported being perceived as lacking competence (73 comments). Thirdly, it was stated that the traditional role relationship would guide a lot of the behavior between doctors and “nurses”/“therapists”, which would lead to their marginalization (51 comments). A minority of comments (18) indicated explicitly that no or rather positive stereotypes had been encountered.

### Relationship between stereotypes and the quality of working relations

We computed Pearson’s correlations between the mean ratings on the working relations scale and the difference between perceived autostereotypes and autostereotypes per attribute. For “nurses”, moderate negative correlations (ranging between  $r = -.254$  and  $r = -.440$ ) were revealed regarding academic ability, practical skills, the ability to work independently and to make decisions, and the ability to be a team player (see Table 2), indicating that the larger the difference between self-perception and their perceived other-perception on these attributes was, the lower they rated their working relations with doctors. Similarly, for “therapists”, moderate negative correlations (ranging between  $r = -.371$  and  $r = -.618$ ) were revealed for academic ability, professional competence and the ability to make decisions (see Table 2). The smaller sample size of “therapists” may have been a reason why no further correlations became significant.

## Discussion

This study provides important insights for the development of effective IPE concepts and interventions in Germany and countries with similar traditionally structured healthcare systems by identifying frequent interprofessional stereotypes and sources of poor collaboration or work dissatisfaction among

**Table 2.** Pearson's correlations between the mean value of the quality of working relations scale and the difference between autostereotypes and perceived autostereotypes.

Perspective	Profession	Attribute									
		Academic ability	Professional competence	Practical skills	Interpersonal skills	Ability to work independently	Ability to make decisions	Ability to lead	Ability to be a team player	Confidence	
<b>Difference between autostereotypes and perceived autostereotypes</b>	<b>"Nurses"</b>	<i>r</i> -0.327**	-0.293	-0.360**	.129	-0.440**	-0.292**	-0.166	-0.254*	-0.149	
		<i>p</i> .001	.060	.000	.416	.000	.004	.103	.012	.148	
		<i>n</i> 96	42	97	42	95	96	97	97	96	
	<b>"Therapists"</b>	<i>r</i> -0.383*	-0.618*	-0.193	-0.358	-0.335	-0.371*	-0.115	-0.169	-0.156	
		<i>p</i> .034	.018	.298	.209	.065	.040	.539	.363	.401	
		<i>n</i> 31	14	31	14	31	31	31	31	31	



**Table 3** Names, contents, and frequencies of categories for comments on stereotypes of doctors.

Category and explanation	Quotes	N (% of 254 statements)
<b>Oversimplification, inference to personality traits</b> Lack of knowledge of the role, skills and responsibilities of the other profession, reduction to single skills or behavior, attribution of stable traits	<i>"Drink coffee and make breaks"</i> (nurse, ID135) <i>"The nice cute female nurse who is a bit naïve and stupid and who does much good for the patients because of her big heart and altruism"</i> (nurse, ID 188) <i>"Doctors do not know what occupational therapists do; for example, a doctor asked me to help the nurse with washing a patient because we would do that too."</i> (therapist, ID125) <i>"Promenader (they are just going for a walk with patients)"</i> (therapist, ID132)	98 (38.6)
<b>(Absolute or relative) level of competence</b> low absolute level of knowledge; lower competence than doctors; differences in type of competence (academic knowledge vs. practical skills)	<i>"Nurses have little professional knowledge; for example, suggestions by nurses concerning the treatment of a patient are rejected or derided."</i> (nurse, ID105) <i>"Doctors have studied; therefore, they have to know it better."</i> (nurse, ID106) <i>"Little medical knowledge, knowledge is limited to treatment techniques only"</i> (therapist, ID 156) <i>"Doctors know best what patients need, speech therapists implement it then (unconditionally)"</i> (therapist, ID 104)	73 (28.7)
<b>Hierarchy, missing participation</b> Dominance of traditionalistic role relationship, doctors are higher in hierarchy vs. assistance, dependence on doctors, ignorance of contributions	<i>"Doctors give nursing directions (although this is not their 'profession')." (nurse, ID140)</i> <i>"I cite a doctor: Only doctors should speak in front of the patient, nurses should stay in the background."</i> (nurse, ID172) <i>"No consideration of nurse's statements, such as the 'patient XY is not looking well today' is being ignored or reacted to too late."</i> (nurse, ID121) <i>"Therapists are not taken seriously"</i> (therapist, ID 107)* <i>"Nurses belong to another social class; they are poorer than doctors."</i> (nurse, ID146) <i>"The nursing team is to blame if a resident changes doctors due to dissatisfaction."</i> (nurse, ID146) <i>"It often requires justifications for the necessity of the own work."</i> (therapist, ID 118) <i>"Lack of accessibility: very busy, many house calls, rarely in the office"</i> (therapist, ID162)	51 (20.1)
<b>Miscellaneous</b>	<i>"Also positive: [Nurses] are very competent and essential in patient care; without (good) nurses [care] not possible."</i> (nurse, ID188) <i>"Dedicated"</i> (nurse, ID243) <i>"I have not encountered any stereotypes. The doctors I have met are informed about my qualifications. Rather the nursing staff is partly ignorant."</i> (therapist, ID 171) <i>"Athletic"</i> (therapist, ID154)	14 (5.5)
<b>No or positive stereotypes</b> No negative stereotypes; positive attitudes observed		18 (7.1)

\* There was only one statement made by a therapist in this category; therefore, just one example can be provided.

experienced health professionals. This is a necessary step in order to provide a more comprehensive evidence base for the spread of stereotypes in the workplace with the specific framework conditions found there and to avoid a transfer of educational concepts developed in countries with completely different structural, cultural and professional conditions. It is striking that these different contextual conditions are rarely reflected in studies of stereotypes in health and social professions (Langlois & Peterkin, 2019).

### **Stereotypes can point to real differences in competence**

Firstly, based on the research questions raised, the results of this study show that nurses, midwives and therapists perceived different spheres of competence as typical of their profession and that of doctors (i.e. intergroup differentiation), which is in line with previous (international) research (Carpenter, 1995; Carpenter & Hewstone, 1996; Hind et al., 2003). For example, they conceived that their profession was superior regarding interpersonal, teamwork and practical skills (Foster & Macleod Clark, 2015; Liaw et al., 2014). Conversely, they regarded academic ability, confidence and the ability to make decisions as strengths of doctors (Hean, Clark, Adams, Humphris et al., 2006; Rudland & Mires, 2005). This attribution was to be expected – especially in view of the fact that

nurses, midwives and therapists are still being qualified beyond the academic world in the country where this study was conducted. Indeed, it can be assumed that our findings about the autosterotypes and heterosterotypes of nurses, midwives and therapists simply reflect real differences in formal qualifications due to unequal educational pathways, on the one hand, and the traditional distribution of power, in which (male) doctors are structurally superior to (female) nurses, midwives and therapists, on the other hand.

More important for the development and legitimacy of IPE is that participants attested to doctors' low teamwork and interpersonal skills. Comparable results have also been found already among students entering university (Rudland & Mires, 2005; Tunstall-Pedoe et al., 2003), being resistant to IPE interventions (Barnes et al., 2000; Foster & Macleod Clark, 2015). That leads to the assumption that these stereotypes are reinforced in day-to-day contact, again reflecting real differences in competences (Barnes et al., 2000). Regardless of the type of qualification and the legal framework for professional practice, this aspect can be addressed and developed during IPE sessions (Barr et al., 1999). Moreover, this result showcases that there are "more similarities than differences" between health professionals of different countries (Xyrichis, 2020) and that international concepts for influencing collaborative behavior can also be taken up in the German-speaking countries.

### **Self-perception and external perception as source of conflicts and dissatisfaction**

Secondly, asking nurses, midwives and therapists how they thought they were perceived by doctors revealed discrepancies regarding their self-perception for all attributes in question. Nurses and midwives, for example, reported that doctors would particularly underestimate their academic ability and professional competence. Such misconceptions may decrease their likelihood to speak up (Hilton & Von Hippel, 1996) and lead to ineffective communication, misunderstandings and also work dissatisfaction (Thomson et al., 2015). On the positive side, nurses and midwives perceived that doctors recognized their interpersonal and team skills, two attributes they rated high for themselves. Whether these perceptions reflect doctors' views accurately can only be assumed (Hean, Clark, Adams, Humphris et al., 2006; Schrauth et al., 2009), but needs to be scrutinized in future work. "Therapists" reported that their ability to work independently and to make their own decisions was disregarded most, which may be due to the structural dependence on medical orders and prescriptions in the German healthcare system. Although it is unclear how doctors actually view therapists and their competence to work independently, such a misconception may be (come) a source of dissatisfaction and interprofessional conflict.

Quantitative results were supported and enriched by the open answers, which we analyzed with respect to the prevalence of emerging topics. For example, the stereotypes listed most frequently belonged to the category "oversimplification," meaning a reduction to single traits or skills, which may be a result of a lack of fine-grained knowledge of the diverse skills and roles used by doctors. The quotes also revealed that, besides stereotypes, structural, legal and working conditions and the associated, predominantly traditional assignment of roles and tasks have a noticeable effect on the interaction at the workplace. Thus, to be able to influence the stereotypes, to enable fair and equitable collaborations and for a needs-based division of labor and responsibilities, system-related changes are necessary. At the same time, these changes are significantly affected by the existence of stereotypes among decision-makers and stakeholders and the professionals involved. Therefore, the implementation of IPE initiatives to increase knowledge and create awareness of the detrimental effect of misconceptions should be fostered. Individual-related and system-oriented measures must be interlinked in order to actually bring about an improvement in interprofessional cooperation.

### **Reciprocal relationship between stereotypes and working conditions**

Thirdly, we investigated how relevant contact conditions, as identified by Allport (Allport, 1954), relate to the prevalence of stereotypes. As expected, we found that less positive stereotypes were related to poorer working conditions such as poorer communication and less mutual respect. This is in line with research in- and outside the health sector (Hind et al., 2003; Pettigrew & Tropp, 2006) and with Allport's contact hypothesis (Allport, 1954). Although our design and measurement do not allow for determining a causal relationship, we expect that there is actually a reciprocal relationship with, for example,

communication problems being both at the root as well as a consequence of misconceptions about roles, skills and responsibilities (Thomson et al., 2015). More research is needed to shed light on the complex relationships between the contact conditions in the workplace and the development and persistence of interprofessional stereotypes.

### **Limitations**

One of the limitations of this study is that our results reflect the perspective of nurses, midwives and therapists but not the corresponding views of the doctors. To identify sources of work dissatisfaction, asking one side is already informative. To assess how accurate the perceived autostereotypes are and whether there is a *mutual* intergroup differentiation (Barnes et al., 2000), however, also requires asking the other side. There are considerations to do this in the future.

Another limitation is that our sample comprised far fewer therapists than nurses due to the stratified sampling. Midwives were also represented only in very small numbers and therefore included in the group of "nurses." This overrepresentation of nurses in our study reflects the fact that nurses are the largest group of people employed in the health system and are also overrepresented in the two study programs from which the respondents were recruited; thus, conclusions about the point of view of the participants in the "therapist" group may be less robust than that about the experiences of the participants in the "nurses" group. A differential analysis of the views of the several professions involved (see Figure 1) was not possible here and is therefore reserved for follow-up studies. Also, few of the effect sizes observed were large, requiring further studies to validate our findings.

Due to technical issues, the sample for two of the nine attributes of the SSRQ (professional competence and interpersonal skills) is smaller than for the other attributes and thus less robust, too. Nevertheless, results for these attributes is in line with previous research (Hean, Clark, Adams, Humphris et al., 2006; Liaw et al., 2014) which makes us confident that future studies can validate our findings.

Furthermore, asking participants for their evaluations of a whole professional group may trigger the elicitation of stereotypes because they have to generalize over diverse encounters. This is, however, appertaining to trait measures, such as SSRQ, and we view it as a strength to have used an established instrument to allow for comparisons with previous studies. Moreover, by providing evidence for the successful implementation of a German version of the SSRQ (Table S2) we hope to facilitate future research on the similarities and differences between typical stereotypes in the German-speaking countries and elsewhere. With our two open questions, we wanted to complement the rather limited range of relevant attributes collected with the quantitative approaches by exploring the most prevalent categories among free statements and examples given. However, to conclude from the frequency with which individual topics were mentioned on their *relevance* for the relationship between "nurses" and "therapists" on the one hand and doctors on the other is certainly not enough. Moreover, an interpretative classification of the mostly short statements was difficult as there is a lack of knowledge about the respective

context of the study participants and their statements. Despite these shortcomings, the quotations have already provided some valuable new insights. A qualitative approach may allow for more differentiation and depth and seems a worthwhile next step.

Finally, although our sample consisted of professionals with several years of working experience, it is possible to have observed a distortion regarding the evaluation of working relations as our participants worked only part-time due to their university studies when taking part in the study (we did not collect any information on their prior workload). Through their studies, they were also able to take a more distant and thus more reflective position on clinical practice and the collaborations experienced there than is possible for other representatives of their professional groups.

## Conclusion

Becoming aware of the different auto- and heterostereotypes and their influence on interprofessional teamwork with the help of IPE may be one important step toward a safer, patient-centered and high-quality collaborative patient care. Our analyses of the attitudes of experienced health professionals support the necessity to convey knowledge about the role, skills and responsibilities of the other professions in IPE as well as the demand to improve the teamwork skills of all health professions. For this, a more widespread adoption of IPE in pre- and post-licensure health professions education and continuing professional development in Germany is needed. Moreover, to increase work satisfaction and improve patient care, nurses, midwives and therapists wish to be empowered to be full and equal members of the care team, necessitating not only educational but also structural and legal changes. To broaden our evidence base, more research is needed on the prevalence of stereotypes in differently structured healthcare systems, and at different stages of the career. Also, integrating a quantitative with a qualitative approach promises to yield rich insights into the complex interplay of stereotypes, IPE and interprofessional collaboration.

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## Declaration of interest statement

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

## Contributions

JEK and ME contributed the original idea and study conception. JEK collected and analyzed the data. ME contributed to the interpretation of the data. JEK wrote the initial article draft. JEK and ME critically revised and approved the version of the article submitted.

## Ethics approval

The study was approved by the Institutional Review Board at the Charité-Universitätsmedizin Berlin (EA1/200/19) and was performed in accordance with ethical standards.

## Data availability statement

The data that support the findings of this study are openly available in OSF at [https://osf.io/6k7vn/?view\\_only=8374aefb8c48483d8f9425387d28f7a1](https://osf.io/6k7vn/?view_only=8374aefb8c48483d8f9425387d28f7a1)

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