

Gender-specific aspects of health literacy in persons with a migration background

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Abstract

Background: Gender is one of the major factors that shape our social lives. As men and women have been found to handle information differently, gender may also influence the ability to access, understand, appraise, and apply health-related information. This ability is called health literacy. Persons with a migration background consistently report lower health literacy than the general population. Low health literacy, however, is connected to worse health outcomes. Moreover, migration, which continues to take place on a high level worldwide, causes persons to move between different cultures with different understandings of gender and gender roles that may affect their health literacy. Therefore, the aim of this dissertation is to explore how gender influences the health literacy of persons with a migration background.

Methods: This dissertation applies a multi-method approach. It entails three studies. Study I, a systematic review and meta-analysis, was conducted to find out whether gender differences of health literacy exist in persons with a migration background, assessed with standardized instruments. For Studies II and III, two different qualitative content analyses of the same focus group discussions with German healthcare professionals were conducted to explore their views on a) how gender as a personal determinant of health literacy affects interactions with migrant patients (Study II) and b) how societal and environmental determinants, situational conditions, and personal factors influence health literacy in transcultural treatment settings (Study III).

Results: In Study I, twenty-two studies were meta-analyzed, finding a small, but significant difference in favor of female migrants' health literacy and a clear shortage of studies on the health literacy of male migrants. Study II found gender aspects such as severe language issues in women of the first Turkish immigrant generation, or husbands restricting their wives to receive treatment by male healthcare professionals, to hinder the effective exchange of health information. Study III revealed general issues, e.g., systemic lack of time, cost pressure and a high workload as especially detrimental to the communication between healthcare professionals and

migrant patients. Healthcare professionals reported to need more time and funding for translators and cultural mediators.

Discussion Five main findings were derived from the joint examination of the three studies: 1) Health literacy seems higher in female than in male migrants, 2) health literacy is gender-specific, with men and women facing different challenges and especially women providing gender-specific solutions to these challenges, 3) the genders' health literacies are interdependent, as men's and women's health literacy can limit (husbands restricting access of their wife) or enhance (women as pioneers for the acceptance psychotherapy also by men) each other, 4) there is little known about men's health literacy, and 5) health literacy issues concerning the general population can be seen in persons with a migration background as if under a magnifying glass. More gender-sensitive, participative research on health literacy in migrants is necessary to explore the particular advantages of females and males and shortcomings in this realm. This allows to investigate the concrete interactions of the genders' health literacies, to shed light on the neglected health literacy of male migrants, and to learn about health literacy-related challenges and solutions that concern the whole population but may be seen clearer and earlier in migrants.

Studies included in this cumulative thesis

Study I

Chakraverty, D., Baumeister, A., Aldin, A., Seven, Ü. S., Monsef, I., Skoetz, N., Woopen, C., Kalbe, E. (2022). Gender differences of health literacy in persons with migration background: A systematic review and meta-analysis. *BMJ Open*, 12(7), e056090. doi:10.1136/bmjopen-2021-056090

Study II

Chakraverty, D., Baumeister, A., Aldin, A., Jakob, T., Seven, Ü. S., Woopen, C., Skoetz, N., Kalbe, E. (2020). Gender-specific aspects of health literacy: Perceptions of interactions with migrants among health care providers in Germany. *International Journal of Environmental Research and Public Health*, 17(7),2189. doi:10.3390/ijerph17072189

Study III

Baumeister, A., **Chakraverty, D.**, Aldin, A., Seven, Ü. S., Skoetz, N., Kalbe, E., & Woopen, C. (2021). “The system has to be health literate, too” – perspectives among healthcare professionals on health literacy in transcultural treatment settings. *BMC Health Services Research*, 21(1), 716. doi:10.1186/s12913-021-06614-x

Related publications

Baumeister, A., Aldin, A., **Chakraverty, D.**, Monsef, I., Jakob, T., Seven, Ü. S., Kalbe, E., Skoetz, N., Woopen, C. (2019). Interventions for improving health literacy in migrants. *The Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.CD013303

Aldin, A., **Chakraverty, D.**, Baumeister, A., Monsef, I., Noyes, J., Jakob, T., Woopen, C., Kalbe, E., Skoetz, N. (2019). Gender differences in health literacy of migrants: A synthesis of qualitative evidence. *The Cochrane Database of Systematic Reviews*, 5(1), 8. doi:10.1002/14651858.CD013302

Scientific contributions (Studies I – III)

Table 1.

Overview of the scientific contributions

	Study I	Study II	Study III**
Study design	All authors	All authors	All authors
Data collection	Chakraverty, D. , Baumeister, A. Aldin, A.	Chakraverty, D. *, Baumeister, A.* Aldin, A.*	Baumeister, A.*, Chakraverty, D. *, Aldin, A.*
Data analysis	Chakraverty, D. , Baumeister, A. Aldin, A.	Chakraverty, D. Baumeister, A. Aldin, A.	Baumeister, A., Chakraverty, D. , Aldin, A.
Data Interpretation	Chakraverty, D. , Baumeister, A. Aldin, A.	Chakraverty, D. , Baumeister, A. Aldin, A.	Baumeister, A., Chakraverty, D. , Aldin, A.
Manuscript preparation	Chakraverty, D.	Chakraverty, D.	Baumeister, A.
Manuscript revision	All authors	All authors	All authors

Note. More detailed information on the contributions can be found in the contributorship statements of the respective studies.

* These authors equally contributed to the corresponding part. ** Study III is based on the qualitative data retrieved in Study II.

List of abbreviations

AXIS	Appraisal Tool for cross-sectional Studies
BHLS	Brief Health Literacy Screen
CI	Confidence interval
CINAHL	Cumulative Index to Nursing and Allied Health Literature
COVID-19	Coronavirus disease 2019
HCP	Healthcare professional
HLQ	Health Literacy Questionnaire
HLS-EU-Q	European Health Literacy Survey Questionnaire
IOM	International organization for migration
MEDLINE	Medical literature analysis and retrieval system online
NVS	Newest Vital Sign
PROSPERO	International prospective register of systematic reviews
PsycInfo	Psychological information database
REALM	Rapid Estimate of Adult Literacy in Medicine
REALM-SF	Rapid Estimate of Adult Literacy in Medicine-short form
RevMan	Review manager
RQ	Research question
SILS	Single Item Literacy Screener
SMD	Standardized mean difference
S-TOFHLA	Short Test of Functional Health Literacy in Adults
TOFHLA	Test of Functional Health Literacy in Adults

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Preface

Imagine a well-educated woman who lives in an environment familiar to her. She is proficient in her language, and she can effortlessly handle the complex social relations of her society. She is so acquainted with the intricate ways in which the sexes interact that she hardly needs to think about it. And she knows what is healthy for her and which sources of health information she can trust if she is not sure after all. Then, something makes her move to a totally alien place – a drought, a war, political persecution, unemployment, it could be any reason. She becomes sick, as many of us do when traveling. Let's assume she somehow finds out that there is a doctor she may consult. But the doctor is a man. Can she risk being alone with this man? What if she is expected to undress for examination? Is there even a danger of her losing her social reputation (in the receiving country, her country of origin, or both)? In her home country, she may have known what to do, whom to turn to, where to look for information. She may have been what we call *health literate*. Here, in this foreign place, she is not.

Imagine a man in a similar situation, health literate at home, coming to a new country, after a while suffering from depression due to being unemployed or not even being allowed to work. Will his reputation as a man suffer from admitting his mental problems? In many countries, most psychotherapists are female – can he, as a middle-aged man, seek counselling from a young woman?

Both imaginary persons are standing at the focal point of gender, health literacy, and migration.

Disclaimer

This dissertation focuses on three major themes: gender, health literacy, and migration. Two of these, gender, and migration, are subjects to a wide, emotionally charged public discourse. Therefore, and due to what is regarded as good scientific practice at least in qualitative research (Berger, 2015), it seems important to me to shortly describe my position on both phenomena.

Gender. I consider myself a cisgender male person, i.e., I feel in line with my birth-assigned gender, as opposed to transgender persons (Aultman, 2014). To me, gender equality, as described in the declaration of human rights (United Nations General Assembly, 1948), entitles persons of any gender, be it men, women, transgender, non-binary persons, and any other gender, to equal rights under any circumstance. I acknowledge that, to the detriment of non-male persons, these rights are still far from being fulfilled and that, as a man, I am in a privileged position. I also do acknowledge that there is a general, biologically determined sexual dichotomy in humans. Nevertheless, my interpretation of the current state of research and that of my own work may be biased towards the assumption that systematic differences in behavior of the different genders are mainly based on social processes.

Migration. My father was of Indian nationality and migrated to Germany around 1960. My mother is German. Therefore, I am what the German authorities call a “person with migration background” (Bundesamt für Migration und Flüchtlinge, 2017). I grew up in the 1970s and 1980s, when most migrants in Germany were factory workers from southern countries (Steinhardt, 2016). As my father was a sociologist and used to work as a journalist with the German radio, I was raised in a socially relatively privileged environment. Although coming from what was considered a so-called “third world country” (Goldstein, Schuler, & Ross, 1983) in those times, my father was fortunate, as he stemmed from a high-caste (“Brahman”) family (Srinivas, 1957). Furthermore, by genetic coincidence, I do not look like most Germans imagine a person with a migration background to look (Chakraverty, 2013; Elrick & Farah Schwartzman, 2015). Hence, I have never been the target of discrimination or racism by strangers in public, other than many

persons with a migration background in Germany (Bednaschewsky & Supik, 2018). At last, I did not grow up bicultural, because the Indian community in Germany was very small at this time – when I was born in 1968, there were about 7000 persons of Indian nationality in all Germany (Statistisches Bundesamt Deutschland, 2021). Thus, acculturation or feeling torn apart between two cultures (Moffitt, Juang, & Syed, 2018) was never an issue for me. All in all, despite my name and lineage, my experience of having a migration background probably differs from that of many other children of immigrants. Again referring to the declaration of human rights, I believe humans should be granted equal rights regardless of their nationality or origin (United Nations General Assembly, 1948). In line with current research, I reject the notion of “race” (Yudell, Roberts, DeSalle, & Tishkoff, 2016); systematic differences between persons of different origins cannot be tracked down to biological roots.

Chapter one: Introduction

At the current point of time, humanity is facing multiple major crises (Martin, Martinelli, & Clifton, 2022; Timmis & Verstraete, 2022). Two of these crises, both of which began after the research presented in this thesis had been conducted, may serve to underline the relevance of this dissertation's topic: the Russian attack on Ukraine (Ramírez & Durón, 2022) and the COVID-19 pandemic (Lundström, 2022). The war in Ukraine forces millions of Ukrainians to migrate to other countries (Marchese et al., 2022). As men of 18 to 60 years are currently not allowed to leave the country (Armitage, 2022), most of the adult Ukrainian refugees are women (Brücker et al., 2022). These women move through a world that is still struggling with the global COVID-19 pandemic (Alexandridi, Mazej, Palermo, & Hiscott, 2022). To deal with this pandemic and to cope with general and gender-specific health needs, it is of vital importance for the refugees to competently handle health-related information and to quickly learn navigating through foreign health systems - in other words: to be health literate (Paakkari & Okan, 2020). Therefore, it seems highly relevant to explore gender aspects of health literacy in persons with a migration background, which is the aim of this dissertation.

When dealing with issues of gender, health literacy, and migration, one encounters three definitional challenges. Gender is a controversial term in the public and academic spheres (Webster, 2000), health literacy is a relatively new and much debated concept (Mackert, Champlin, Su, & Guadagno, 2015), and the question of who can and should be considered a migrant is a politically explosive issue (Anderson & Blinder, 2019). Therefore, the next paragraphs highlight the background of the three terms, their relevance, their interconnections, and the definitions used for the purpose of this dissertation.

Gender

Gender is one of the major factors shaping our social lives. Even before a human being is born, gender influences what name the person will be given (Bauer & Coyne, 1997), how his or her

movements are interpreted in the mother's womb (Rothman, 1987) and what kind of toddler clothes parents buy (Barnes, 2015). Gender determines, for instance, how we are addressed when spoken to or about (Holmes, 1991). In the German language, it is virtually impossible to talk about a person without using gender markers, while in other languages, e.g., Spanish, persons cannot even talk about themselves without revealing what gender they ascribe themselves to (Pountain, Kattan-Ibarra, Pountain, & Kattán-Ibarra, 2004). Thus, even on the most basic levels of communication, gender is ubiquitous. But what is gender exactly and how is it different from sex?

Sex vs. Gender

Sex and Gender are closely connected, but they are not the same. A very simple and common definition denotes sex as the biological difference between male and female persons, while gender regards the social aspects of sex (Schlittler, 2015). But to distinguish one from the other is no trivial task. In biology, mammals such as human beings, develop testes and are called males if they have one x and one y chromosome; those with two x chromosomes develop ovaries and are referred to as females (Ainsworth, 2015). While there is a fraction of up to 1% of persons, who are born with inconclusive biological sex markers (Arboleda, Sandberg, & Vilain, 2014), the vast majority of humans develop into one of these two biological sexes, in a complex, interactive process (Loof, 2018; Sanchis-Segura & Becker, 2016). The resulting dichotomy has to be understood as a two-peaked distribution of mainly physiological features, most of them related to sexual reproduction (Sanchis-Segura & Becker, 2016). Those features determine that it is the female persons who can get pregnant, give birth to babies, and who are able to breastfeed them, while men's necessary contribution to reproduction is restricted to the supply of functional sperm (Mawhinney & Mariotti, 2013). While this biological division of the sexes regarding reproduction seems relatively clear, the question if and to what extent this dichotomy influences or even determines personality traits and behavior, is a highly disputed field of research, closely related to the debate about nature and nurture (Fausto-Sterling, 2005). Furthermore, the social environment modulates biological processes such as the production of sexual hormones (Forney et al., 2019; McCarthy & Arnold, 2011; van Anders & Watson, 2006), which feed into the developmental process of becoming a man or a woman (McCarthy & Arnold, 2011). Thus, sex and

gender overlap and interact, as do nature and culture (Fausto-Sterling, 2005). Cautiously put, the more we move away from physiological features of the human body and into the realm of experience and behavior, the more it seems appropriate to use the term gender instead of the word sex. Psychology is usually understood as “the science of the mind and behavior” (American Psychological Association, 2021). Therefore, the term gender will be used throughout this dissertation.

Gender and social roles

From the view of social role theory (Eagly, 1987), the different roles of men and women in reproduction biology were the basis of two interconnected social and cultural phenomena:

- the division of labor, which, in the overwhelming majority of known cultures, led to women being bound to domestic work (e.g., child rearing) and men fulfilling non-domestic tasks (e.g., hunting); and
- social hierarchy within groups, putting men into more powerful positions due to being able to acquire more resources based on their work (Rudman & Glick, 2008).

Against this background, stereotypical expectations of specific characteristics became established, ascribing communal traits (e.g., warmth and nurturance) to women, and agentic traits (e.g., competence, leadership) to men (Fiske, Cuddy, Glick, & Xu, 2002). Male characteristics were related to power and status and were valued higher than female ones. These social psychological aspects were closely connected to the rise of patriarchal orders which have been analyzed, all above, by feminist scholars from multiple fields. A basic definition of patriarchy is “a system where men and masculine bodies dominate because power and authority are in the hands of adult men.” (Shaw & Lee, 2019, p. 6). While a deeper investigation of patriarchy is far beyond the scope of this dissertation, it is necessary to mention one of its important aspects that links patriarchal thinking to the relation of gender and health. This aspect is called *androcentrism* (i.e., male-centeredness).

Gender, androcentrism, and health

Within patriarchal societies, “males and male experience are treated as a neutral standard or norm, and females and female experience as a sex-specific deviation from that norm” (Bem, 1993, p. 7). This also shaped the view on humans in medicine (Bueter, 2017) and psychology (Bem, 1993). Androcentrism has led to the neglect of women in research, diagnosis, and treatment (Merone, Tsey, Russell, & Nagle, 2021) with even deadly consequences, e.g., in the case of underdiagnosis of cardiovascular diseases in women due to the focus on symptoms typically found in men (Beery, 1995). As a reaction, a field called gender medicine was established in the United States, Europe, Canada, and Australia (Nachtschatt, Steinboeck, & Hochleitner, 2018), focusing on gender aspects of health. Applying a gender lens to health proved to be beneficial for men as well (Gemmati et al., 2019). Their gender-specific health issues and needs had been neglected for a long time – gender used to be something that belonged to women, not to men (Hearn, 2019; Marcos-Marcos, Gasch-Gallén, Mateos, & Álvarez-Dardet, 2021). Still, gender medicine has often been criticized for focusing too much on biological aspects and sex differences, while at the same time ignoring societal aspects (Shai, Koffler, & Hashiloni-Dolev, 2021). When centering on health behavior, the biological aspects become less dominant. For example, evidence for differences in health behavior of men and women has been found regarding health risk behavior (Ricciardelli & Williams, 2011), substance abuse (Buu, Dabrowska, Heinze, Hsieh, & Zimmerman, 2015), engagement in preventive measures (Hiller, Schatz, & Drexler, 2017), and responsiveness to health-related interventions (B. T. Johnson, Scott-Sheldon, & Carey, 2010). Gender differences were also reported on the topics of handling health-related information, i.e., concerning the general interest in health information (Ek, 2015), strategies for searching such information online (Bidmon & Terlutter, 2015), understanding the information found (Rowley, Johnson, & Scaffi, 2017) and appraising self-assessed health information (Benyamini, Leventhal, & Leventhal, 2000). These differences in handling health information connect gender to a construct called *health literacy*.

Health Literacy

First mentioned in in 1974 (Simonds, 1974), the concept of health literacy has been subject to many different definitions and understandings ever since (Mackert et al., 2015), as it was developed in different areas such as school health education, adult education, health care research, and public health. While the educational approaches focused on “skills, knowledge and further cognitive and social abilities” (Okan, 2019, p. 32), both public health and health care research were more centered around improving health outcomes. In an influential paper, Don Nutbeam (2000) proposed to categorize health literacy into three sequential levels:

1. Functional health literacy, i.e., the basic ability to obtain health information and apply it within the health system.
2. Interactive health literacy, denoting the advanced capacity to extract and interpret health information from different sources, exchange, apply and act upon them.
3. Critical health literacy, defining the ability to critically analyze information from different fields and relate them to health-related areas of life (Nutbeam, 2000).

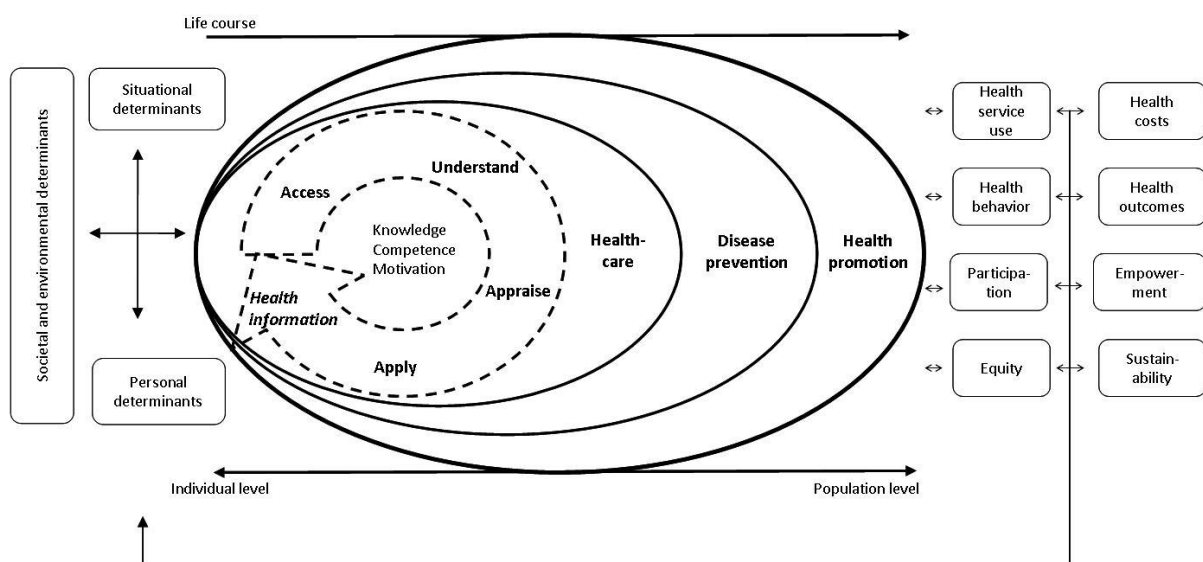
During the following years, health literacy drew more and more attention in research and practice, with the number of publications listed in the Web of Science collection rising from four in 1995 to 1141 in 2019 (Qi, Hua, Xu, Zhou, & Liu, 2021), and new health literacy definitions and frameworks being introduced (Cudjoe, Delva, Cajita, & Han, 2020). In 2012, Kristin Sørensen et al. undertook a content analysis of the existing definitions and frameworks, resulting in the following comprehensive definition of health literacy:

Health literacy is linked to literacy and entails people’s knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course. (p. 3)

(Sørensen et al., 2012)

In this seminal paper, an integrated model of health literacy was proposed, which also incorporated the influence of societal, environmental, situational, and personal factors (which were denoted as “determinants”) of health literacy (see Figure 1). These determinants were categorized into distal determinants, i.e. societal and environmental factors including culture, language, and societal systems, and proximal factors, including personal determinants as gender, race, and education as well as situational determinants, e.g. family and peer influence and the physical environment (Sørensen et al., 2012). As opposed to *functional health literacy*, which is commonly described as “the ability to read and understand health-related materials” (D. W. Baker et al., 2002, p. 1278), this broad understanding of health literacy is often referred to as *comprehensive health literacy* (Sørensen et al., 2013). For the purpose of this dissertation, I refer to this broad conception of health literacy, while acknowledging that defining health literacy is subject to a lively discourse which makes it a work in progress (Pleasant et al., 2016; Sørensen, 2019).

Figure 1
Integrated model of health literacy



Note. From *Health literacy and public health: A systematic review and integration of definitions and models*, by Kristin Sørensen et al., 2012, BMC Public Health, 12, p. 80. CC BY 2.0

Furthermore, a considerable number of specialized types of health literacy have emerged, such as oral (Horowitz & Kleinman, 2008), cancer (Dumenci et al., 2014), diabetes (Black, Maitland, Hilbers, & Orinuola, 2017), and mental health literacy (Furnham & Swami, 2018). These types of health literacy are not part of this dissertation.

The impact of high and low health literacy

Different degrees of health literacy are associated with different impacts on the individual as well as on the health systems. Low health literacy was found to predict increased numbers of hospitalizations and usage of emergency care, and decreased numbers of mammography screenings and influenza immunizations (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; McDonald & Shenkman, 2018). In the realm of disease management, a number of systematic reviews examined health literacy in patients with certain diseases: For example, in patients with coronary heart diseases, low health literacy was consistently associated with more hospital readmissions, lower health related quality of life, higher anxiety and lower social support (Ghisi, Da Chaves, Britto, & Oh, 2018). Diabetes patients with higher health literacy achieved more positive results regarding diabetes knowledge, physical activity, self-efficacy and quality of life (Dahal & Hosseinzadeh, 2019). A recent systematic review and meta-analysis found higher health literacy to be associated with higher screening participation for breast, cervical and colorectal cancer (Baccolini et al., 2022). Analyses in health economics concluded that low health literacy might be an important contributor to high health system costs (Eichler, Wieser, & Brügger, 2009; Howard, Gazmararian, & Parker, 2005; Palumbo, 2017).

With the onset of the COVID-19 pandemic and wildly spreading misinformation (Barua, Barua, Aktar, Kabir, & Li, 2020), researchers underlined the importance of health literacy as the ability to competently handle and communicate health information (Abdel-Latif, 2020; Paakkari & Okan, 2020; Sentell, Vamos, & Okan, 2020). Existing evidence for low health literacy being connected to difficulties in health information seeking (Chen et al., 2018) was now supplemented by COVID-19-specific research: Endorsement of misinformation beliefs about COVID-19 and vaccination was more often found in persons with low health literacy (McCaffery et al., 2020), and

higher health literacy was shown to be connected to more accurate knowledge about the disease (Naveed & Shaukat, 2021; Nguyen et al., 2020).

Today, the relevance of health literacy is a consensus in public health. This renders the availability of methods for its objective measurement even more important.

Measuring health literacy

As of today, the Health Literacy Tool Shed, a database maintained by the Boston University (Harnett, 2017), lists 217 different instruments measuring health literacy (<http://healthliteracy.bu.edu/all>). These instruments differ in certain aspects, depending on what purpose the respective tool was designed for (quick screening or in-depth assessment), what kind of health literacy it aims to measure (functional or comprehensive health literacy), and whether the measurement is performance-based or self-evaluated. For example, the Brief Health Literacy Screen (BHLS) by Chew, Bradley, & Boyko (2004), was designed for the quick identification of patients with low health literacy in clinical settings by asking them to estimate, e.g., "How confident are you filling out medical forms by yourself?" Answers range from 1 (*Extremely*) to 5 (*Not at all*). Thus, the BHLS is a screening tool used for the self-evaluation of functional health literacy (as it focuses on understanding written health information, see Health Literacy, p. 14). Performance-based instruments such as the Test of Functional Health Literacy in Adults (TOFHLA) by Parker et al. (1995) pose some kind of test to the participants. For example, one task in TOFHLA is to correctly complete a sentence regarding how to act before having an X-ray test of the stomach: "Do not eat _____.", with the correct answer being "breakfast". An example for the assessment of comprehensive health literacy is the HLS-EU-Q, short for European Health Literacy Survey Questionnaire (Pelikan, 2012). It is based on the integrated model of health literacy by Sørensen et al. (2012).

For an overview, the most frequently mentioned or cited measurement instruments according to Pleasant et al. (2019) are listed in Table 2.

Table 2.*Most popular health literacy measurement instruments according to Pleasant (2019)*

Abbreviation (original publication)	Name	Number of items	Type of health literacy	Versions	Short description
TOFHLA (Parker, Baker, Williams, & Nurss, 1995)	Test of Functional Health Literacy in Adults	67	Functional	S-TOFHLA (Short TOFHLA; 40 items)	Performance-based assessment: Patients complete sentences from medical instructions and answer number-related questions regarding e.g. monitoring of blood glucose levels
REALM (Davis et al., 1991)	Rapid Estimate of Adult Literacy in Medicine	66	Functional	REALM-SF (REALM- Short Form; 7 items)	Performance-based screening: Participants are to read health-related words aloud to test pronunciation and understanding
NVS (Weiss et al., 2005)	Newest Vital Sign	6	Functional	-	Performance-based screening: Participants answer six questions related to the information given on a nutrition label presented to them
BHLS (Chew et al., 2004)	Brief Health Literacy Screen	3	Functional	Single Item Literacy Screener (SILS, one item)	Self-evaluated screening: Participants answer questions about their ability to understand written medical information
HLS-EU-Q (The HLS-EU Consortium, 2012)	European Health Literacy Survey Questionnaire	47	Comprehensive	HLS-EU-Q 86 (extended version; 86 items) HLS-EU-Q 16 (short version; 16 items)	Self-evaluated assessment: Patients answer questions about how difficult they find dealing with different aspects of health information handling
HLQ (Osborne, Batterham, Elsworth, Hawkins, & Buchbinder, 2013)	Health Literacy Questionnaire	44	Comprehensive	-	Self-evaluated assessment: Patients answer questions about health communication, information, management, and availability of social support for health

Note. All instruments are available as validated, translated versions in multiple languages.

Applying such measures, nation-wide studies have been conducted in many countries during the last two decades. These studies revealed limited (i.e. insufficient or problematic) health literacy

levels in considerable parts of the respective populations (Vamos, Okan, Sentell, & Rootman, 2020), including 47% of persons in the U.S. (U.S. Department of Health and Human Services & Office of Disease Prevention and Health Promotion, 2010), 60% of adults in Canada (Murray, Hagey, Willms, Shillington, & Desjardins), more than 90% of residents in China (Wu et al., 2017), and 47.6% across eight countries in Europe (Sørensen et al., 2015). Given both the strong relationships between health literacy and health outcomes and high costs of insufficient health literacy for the health systems indicated by first studies (Eichler et al., 2009; Howard et al., 2005), policy makers were alarmed by those numbers. The United Nations called for the development of national action plans to promote health literacy (United Nations Economic And Social Council, 2009). Today, such action plans or similar nation-wide programs have been implemented in several countries such as the United States (Baur, 2011), Australia, Scotland and Wales (Weishaar, Hurrelmann, Okan, Horn, & Schaeffer, 2019), China and New Zealand (Trezona, Rowlands, & Nutbeam, 2018), and Germany (Schaeffer, Gille, Vogt, & Hurrelmann, 2021).

The “silent epidemic” (Parker & Ratzan, 2010, p. 20) of low health literacy provoked the question what factors could be related to low health literacy and for what reasons. A representative study in the U.S. found male gender, lower educational attainment, racial/ethnic minority status, older age, lower income, and recent immigration to the U.S. to be associated with lower estimated health literacy (Kutner, Greenberg, Jin, & Paulsen, 2006). A systematic review of 85 studies revealed low level of education, non-white ethnicity and older age to be connected to low health literacy (Paasche-Orlow, Parker, Gazmararian, Nielsen-Bohlman, & Rudd, 2005). First and foremost, education proved to be a stable predictor of health literacy (Stormacq, van den Broucke, & Wosinski, 2019). As access to education is a key factor in gender inequality, it could be expected that gender might also play a significant role regarding health literacy. However, the calls to examine gender as a possible influencing factor (Kickbusch, 2001; Ratzan, 2001) took place against a backdrop of puzzling results.

Health literacy and gender

In health literacy research, correlations were found between health literacy scores and gender, with ambiguous findings regarding strength and direction of these correlations. For example, Clouston et al. (2017) found 47.5% of men in a U.S. sample ($N = 2,122$) to have low health literacy as compared to 39% of women ($p < .001$) when measured using the NVS. Lee et al. (2014) applied an eight-item version of the BHLS to a Korean sample ($N = 585$) and found men to perform worse on all three subscales. In contrast, Son & Won (2020) measured health literacy in another Korean sample ($N = 286$) using the three-item version of the BHLS and found men to achieve higher scores ($p = .02$), and a study undertaken in Kosovo by Toci et al. (2013) measuring health literacy in elderly adults using TOFHLA ($N = 1,735$) also reported higher scores for men than for women ($p < .001$). To complete this heterogeneous picture, some studies found no gender differences at all (D'Cruz & Shankar Aradhya, 2013; Gausman Benson & Forman, 2002; Geboers, Reijneveld, Jansen, & Winter, 2016; Wilson, Yu, James, Bennett, & Boyle, 2017). These ambiguous results suggest that, if gender is an important factor influencing health literacy, it might be necessary to investigate its role in connection with other meaningful influences (Hankivsky, 2012). As recent research indicates, one of these influences might be migration.

Migration

In a representative, cross-sectional study in Germany, 71% of persons with a migration background as compared to 52.8% of the general population reported insufficient or problematic levels of health literacy (Quenzel & Schaeffer, 2016). This is in line with research undertaken in the U.S. (Kutner et al., 2006), Canada (Ng & Omariba, 2011), and Australia (Beauchamp et al., 2015). The massive movement of persons into countries with customs, languages, and health systems unknown to them poses a great challenge to the migrants themselves as well as the receiving countries.

According to the latest report on worldwide migration, issued by the International Organization for Migration (IOM), the number of migrants is rising steadily, from 174 million in

1995 to 272 million in 2019 (International Organization for Migration, 2019). A constant high level of global migration is expected for the near future (Sander, Abel, & Riosmena, 2013) and may even rise due to the increasing instability of the world's ecosystem forcing people to leave their place of residence (Kaczan & Orgill-Meyer, 2020; McLeman, 2018). Currently, the Russian attack on Ukraine forces millions of Ukrainians to leave their country (Brücker et al., 2022). Apart from these examples of forced migration, many persons leave their home country on a (more or less) voluntary basis, e.g. for work (Fauri & Tedeschi, 2018). To cover all these forms of migration, the IOM defines a *migrant* as follows:

. . . any person who is moving or has moved across an international border or within a State away from his/her habitual place of residence, regardless of (1) the person's legal status; (2) whether the movement is voluntary or involuntary; (3) what the causes for the movement are; or (4) what the length of the stay is. (International Organization for Migration, 2018).

In Europe, the term *migratory background* additionally denotes persons of whom "at least one of their parents previously entered their present country of residence as a migrant" (European Commission, 2019), thus including second-generation migrants. As the experience of migration has been found to be very present in the second generation as well (Deepak, 2005; L. S.-H. Park, 2016), I refer to this definition by the European Commission (2019), albeit using the more common term migration background. In Germany, this term refers to people who were born with a nationality other than German and those for whom this applies to at least one parent (Bundesamt für Migration und Flüchtlinge, 2017). As nationality is only an indirect indicator of migration, this definition is not used in this dissertation.

Gender, health literacy and migration

Gender-related behavior, values, identity, and roles can differ considerably between cultures (Best & Puzio, 2019). Different indices have been developed to measure and compare gender equality internationally (Mills, 2010). Applications of these measures revealed profound differences between countries worldwide, e.g. as reported in the Human Development Report

issued by the United Nations (United Nations Development Programme, 2020). Here, gender differences regarding the access to education – which is, as described above, one of the most important predictors for health literacy – form one of central factors of gender inequality (Gaye, Klugman, Kovacevic, Twigg, & Zambrano, 2010). In regions where women have less access to education, their unemployment rates are higher and their income is lower than that of men, they have less autonomy regarding the handling of resources, and less political participation (Gaye et al., 2010; Merten et al., 2015). As many migrants, especially women, move from areas with high levels of gender inequality into more gender egalitarian societies (Perales, Lee, Forrest, Todd, & Baxter, 2021; Ruysen & Salomone, 2018), the contrast between the different concepts of gender in the home countries versus the receiving countries might be especially clear in migrant populations. Furthermore, persons who migrate into a different culture do not instantly adapt to the gender norms of the receiving country; it rather seems that gender-related values and norms of the home country can persist even into the second generation (Blau, 2015). Thus, if gender and health literacy are connected, this relationship may be seen more clearly in persons with a migration background and may help to identify reasons for the comparably low health literacy in this subpopulation.

To summarize, gender is a major factor shaping our social lives, including health-related experiences and behavior. Its impact on health literacy has not yet been clarified and may reveal itself in certain subpopulations. Persons with a migration background have shown lower scores on health literacy scales than the general population, and their gender-related norms, values, practices, and access to education often differ from that of the receiving countries. Therefore, looking into gender aspects of health literacy in persons with a migration background may help to find out whether gender contributes to the health literacy of this group and to explore how its influence is manifested.

Chapter two: The present thesis project

The present thesis project draws on research conducted during the project GLIM – Gender-specific health literacy in individuals with migration background: Systematic review including a meta-analysis of individual participant data, funded by the German Federal Ministry of Education and Research (Bundeministerium für Bildung und Forschung, grant number 01GL1723).

Aim of the present thesis project

The aim of this dissertation is to explore how gender influences the health literacy of persons with a migration background.

Research questions (RQ)

RQ 1: Are there gender differences of health literacy in persons with a migration background, assessed with standardized instruments to measure health literacy?

In order to investigate gender aspects of health literacy in persons with a migration background it is vital to find out whether different genders score differently on established, quantitative measurement instruments to assess health literacy. Therefore, we conducted a systematic review and meta-analysis on gender differences of health literacy in persons with a migration background (Study I). This study is described in Chapter three: Study I – Gender differences of health literacy in persons with a migration background.

RQ 2: How are gender-specific and systemic aspects of health literacy in intercultural treatment settings experienced by healthcare professionals in Germany?

The exchange of health information is a central component of health literacy. It takes place, first and foremost, in the treatment situation. To explore the perceptions of experts regarding health literacy in intercultural treatment settings, we conducted focus groups with healthcare

professionals serving persons with a migration background on a regular basis. This is described in Chapter four: Studies II and III – Gender-specific and systemic aspects of health literacy in the context of migration. A general category system for structuring the data was built based on the following two detailed research questions:

RQ 2a: How does gender as a personal determinant of health literacy affect interactions with migrant patients from the perspective of healthcare professionals in Germany?

Applying qualitative content analysis, we further organized the data into inductively generated gender-related subcategories and analyzed the gender aspects of health literacy in transcultural treatment settings. The qualitative data derived from the FGD were analyzed from two different angles, resulting in two refined versions of the basic category system described in the methods section. Therefore, the results of these two analyses are reported separately below for Study II and Study III.

RQ 2b: How do societal and environmental determinants, situational conditions, and personal factors influence health literacy in transcultural treatment settings from the perspective of healthcare professionals?

Another qualitative content analysis took a broader perspective, using inductively built subcategories representing factors that influence health literacy i.e., societal and environmental, situational, and further personal factors. This analysis focused on the systemic aspects of health literacy in transcultural treatment settings and is described in Study III: Systemic aspects of health literacy in the context of migration.

Chapter three: Study I – Gender differences of health literacy in persons with a migration background

Chakraverty, D., Baumeister, A., Aldin, A., Seven, Ü. S., Monsef, I., Skoetz, N., Woopen, C., Kalbe, E. (2022). Gender differences of health literacy in persons with migration background: A systematic review and meta-analysis. *BMJ Open*, 12(7), e056090. doi:10.1136/bmjopen-2021-056090

The full manuscript can be found in the appendix, original publications, **Fehler!**

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Introduction

Men and women migrate for different reasons, and their experiences during and after migration differ as well, including their interactions with the health systems of the receiving countries (Brabete, 2017). Given these differences between men and women, researchers have repeatedly called for consideration of gender issues when examining health literacy among immigrant populations (Villadsen et al., 2020; Ward, Kristiansen, & Sørensen, 2019).

Therefore, this systematic review aimed to investigate gender differences of health literacy in persons with a migration background, assessed with standardized instruments to measure health literacy.

Methods

This systematic review was conducted following the PRISMA guidelines (Moher et al., 2015). The protocol has been registered in advance (Chakraverty et al., 2018) on the preregistration platform PROSPERO (International Prospective Register of Systematic Reviews; Booth et al., 2012). The search was conducted in OVID (MEDLINE), PsycINFO and CINAHL using search strings containing a set of terms addressing the main components (e.g., “health literacy”, “migration”). The first search ran in March 2018, followed by an update search in July 2020. The complete search strategy can be found in the supplemental material appended to the original manuscript (see original publications, **Fehler! Verweisquelle konnte nicht gefunden werden.**). Two researchers independently screened title and abstracts of the retrieved studies for eligibility. In a second step, they individually reviewed the full texts of the studies identified in the screening process using the predefined inclusion and exclusion criteria. Disagreements were resolved through involvement of a third author.

The following inclusion criteria were applied:

- Studies had to include health literacy data collected with a standardized, validated instrument.
- Studies had to provide gender-specific health literacy scores or levels.
- Participants of the individual studies had to be adults (aged ≥ 18 years) with a migration background.

In case health literacy and gender were assessed without reporting gender-specific scores or levels, we requested the gender-specific data from the respective authors.

Our primary outcome was gender differences in health literacy of persons with migration background, assessed with standardized instruments to measure health literacy.

Study characteristics and results were extracted for each study, including authors, country of research, description of the population, number of male/female participants, type of health literacy measurement instrument, baseline mean and standard deviation of health literacy scores

for men and women. All extracted data were double-checked by a second researcher. Furthermore, two authors independently assessed risk of bias for the studies included in the meta-analyses by using the Appraisal Tool for Cross-sectional Studies (AXIS; Downes, Brennan, Williams, & Dean, 2016). Differences were reconciled discursively. The results of the assessment (Risk of bias table) are appended in the supplemental material added to the original manuscript (see original publications, **Fehler! Verweisquelle konnte nicht gefunden werden.**)

Meta-analyses were carried out using the software RevMan 5.4 (The Cochrane Collaboration, 2020). We used standardized means and a random-effects model (Hedges, 1983) to estimate the gender differences in health literacy scores. Heterogeneity between studies was assessed using Q and I^2 statistics (Higgins & Thompson, 2002). Tests for subgroup differences were carried out for region of origin, type of health literacy assessment tool, and functional vs. comprehensive health literacy. We undertook two kinds of sensitivity analyses: 1) excluding studies having high risk of bias and 2) applying a fixed-effect model (Higgins et al., 2022).

Results

We identified 5742 studies, of which 2013 were excluded as duplicates. Thus, 3729 articles were checked for titles and abstract, of which 3437 were excluded, leaving 292 studies for full text screening. At the full text review stage, we excluded 268 studies with reasons, including 56 otherwise eligible studies whose authors did neither report gender-separated health literacy scores nor provided these data upon our request. Notably, we had to exclude 27 studies which included female participants only. As no studies with exclusively male participants met our inclusion criteria, there were no comparable counterparts for these studies. Finally, 24 studies were included.

Of the 24 studies included in this review, 16 were conducted in the U.S., six studies in Europe, and two in Asia. Participants included in the studies were of Hispanic/Latin ($n = 14$), diverse ($n = 5$), Korean ($n = 2$), Chinese, Somali, and Russian (each $n = 1$) origin. Most studies ($n = 20$) measured functional health literacy, while comprehensive health literacy was measured in

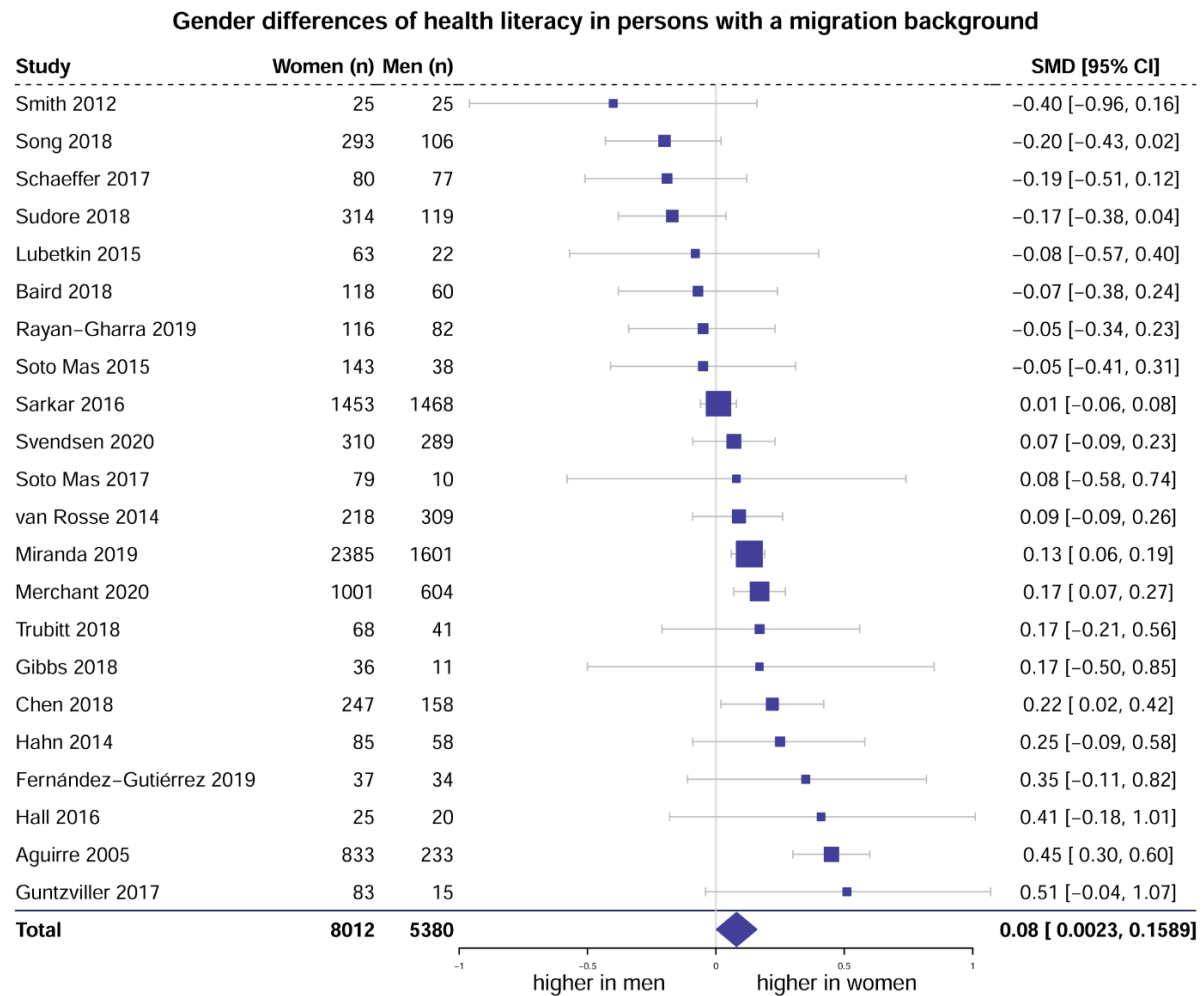
five studies (one study reported results for both functional and comprehensive health literacy). Health literacy was measured using different instruments, with the most commonly used tools being varieties of the BHLS that were applied in seven studies and versions of the HLS-EU-Q, employed in five studies.

Two of the included studies (Geltman et al., 2013; Wångdahl, Lytsy, Martensson, & Westerling, 2014) reported health literacy categories (e.g., low vs. high health literacy) instead of numeric scores and were not included in the meta-analysis. Risk of bias was low in 16 studies, medium in four studies, and one study was rated to be at high risk of bias. We meta-analyzed 22 studies with 13,392 participants reporting health literacy scores for women ($n = 8,012$; 59.8%) and men ($n = 5,380$; 40.2%).

A small but significant gender difference ($SMD = .08$; 95% CI [0.002 – 0.159]; $p = .04$) in health literacy scores could be identified, with women achieving higher scores than men. A considerable level of heterogeneity ($I^2 = 65\%$; $p < .0001$) between studies was found. Detailed results and a forest plot are depicted in Figure 2.

Figure 2

Forest plot depicting gender differences in health literacy



Heterogeneity: Tau² = 0.02; Chi² = 60.64, df = 21 (P < 0.0001); I² = 65%
 Test for overall effect: Z = 2.02 (P = 0.04)

In a sensitivity analysis excluding the one study we found to be of high risk of bias (Guntzviller, King, Jensen, & Davis, 2017) the gender difference ceased to be statistically significant ($SMD = 0.07$; 95% CI [-0.005 - 0.152]; $p = .07$; $I^2 = 66\%$), whereas it appeared more pronounced when a fixed-effect model was applied ($SMD = 0.10$; 95% CI [0.10 - 0.13]; $p < .001$). Subgroup analyses for region of origin, health literacy measurement instrument and type of health literacy measured revealed no significant group differences.

Discussion

Overall, we found health literacy in female persons with a migration background to be higher than in their male counterparts. However, this difference was very small ($SMD = 0.08$, $p = .04$), there was a substantial heterogeneity between studies ($I^2 = 65\%$), and statistical significance vanished when excluding the one study considered to be of high risk of bias. Therefore, these results must be interpreted with caution. We found 27 studies, which investigated the health literacy of female migrants, but did not include them as we could not find studies on the health literacy of migrant men only. Furthermore, even within the studies included in the meta-analysis, the number of female participants ($n = 8012$) far exceeded that of men ($n = 5380$). None of the studies included in this review provided a definition of gender. Most studies ($n = 30$) did not mention how gender was assessed and only one study (Merchant, Marks, Clark, Carey, & Liu, 2020) reported having assessed gender beyond the male/female dichotomy. Not considering the social aspects of gender strikes as a severe omission in health literacy research. Future research should provide thorough theoretical foundations for examining gender in this context and operationalize the construct gender accordingly. Furthermore, there is an urgent need for more research on the health literacy of migrant men in general, who may have lower health literacy than women. Further research should aim at finding out about the causes of this possible disadvantage. A gender-sensitive methodology might help to improve the effectivity of interventions aimed at promoting the health literacy of migrant men and further strengthening that of migrant women (Oliffe et al., 2016; Vila-Candel, Martínez-Arnau, La Cámara-de Las Heras, Castro-Sánchez, & Pérez-Ros, 2020).

Chapter four: Studies II and III – Gender-specific and systemic aspects of health literacy in the context of migration

This chapter is based on two independent qualitative analyses of the same data. Therefore, they share the same sections on background and methods, and the discussions are grouped under a common heading. The chapter is based on the following two publications:

Study II. Chakraverty, D., Baumeister, A., Aldin, A., Jakob, T., Seven, Ü. S., Woopen, C., Skoetz, N., Kalbe, E. (2020). Gender-specific aspects of health literacy: Perceptions of interactions with migrants among health care providers in Germany. International Journal of Environmental Research and Public Health, 17(7),2189. doi:10.3390/ijerph17072189

Study III. Baumeister, A., Chakraverty, D., Aldin, A., Seven, Ü. S., Skoetz, N., Kalbe, E., & Woopen, C. (2021). "The system has to be health literate, too" – perspectives among healthcare professionals on health literacy in transcultural treatment settings. BMC Health Services Research, 21(1), 716. doi:10.1186/s12913-021-06614-x

The full manuscripts can be found in the appendix, original publications, **Fehler! Verweisquelle konnte nicht gefunden werden.** and **Fehler! Verweisquelle konnte nicht gefunden werden..**

Background

To further investigate gender aspects of health literacy in persons with a migration background, we set out to explore how these aspects could be examined in Germany. Each country has its own, unique history of inbound and outbound migration. In the recent history of Germany, there have been two major phases of intense migration into the country: In the 1950s, massive numbers of workers, most of them from Turkey, were recruited to work in the factories of the up-

and-coming German industry (Göktürk, Gramling, & Kaes, 2007). In 2015, the country received a large amount of refugees mainly from Syria and Iraq (Karakayali, 2018)¹. These relatively new subgroups of the country's population naturally interact with the German health system. In these interactions, health information is exchanged; it must be obtained, understood, appraised, and applied. Many healthcare professionals communicate with persons with a migration background on a regular basis. Therefore, their experiences can help to gain an understanding of health literacy in the context of migration. Using a qualitative research design, we explored the perspectives of healthcare professionals on gender aspects as well as on systemic aspects of health literacy in the context of migration.

Methods

Study design

We conducted five focus group discussions (FGD) with healthcare professionals ($N = 31$) between January 2018 and March 2019.

Participants and recruitment

We applied purposive and snowball sampling to recruit participants around Cologne, a metropolitan city in West Germany, mainly drawing on the Health Guide for Migrants (Kommunale Gesundheitskonferenz Köln, Arbeitsgruppe Migration und Gesundheit, 2013), a local list of registered health care professionals and institutions with diverse language competencies. The main inclusion criteria were a degree in a health-related profession, at least two years of work experience and regular medical-therapeutic or counselling contact with persons with a migration background. Participants were recruited via email until saturation was

¹ The research presented in this dissertation was conducted before the Russian invasion of Ukraine; therefore, the influx of refugees from Ukraine could not be considered.

reached with regard to the research questions (Guest, Namey, & McKenna, 2016). In total, 31 healthcare professionals participated in the FGD. Table 3 provides an overview of the participants' characteristics.

Table 3.

Studies II & III: Participants characteristics (N = 31)

		Men	Women
Age (years)	25-34	1	4
	35-44	4	7
	45-55	5	3
	>= 55	5	2
Migrant background	Yes	8	8
	No	7	8
Occupation	Physicians	8	5
	Psychologists	1	1
	midwife/pediatric nursing	0	2
	nursing care	3	2
	Other healthcare professionals*	3	6
Total		15	16

* including e.g., ergo therapist, physio therapist, trauma counsellor or speech therapist

Our focus was to explore the participants' perceptions about their interactions with persons with a migration background. The participants reported almost exclusively on their experiences with first-generation migrants, predominantly of Turkish and Arab origin. Patients' affiliations with the Islamic faith were also frequently mentioned.

Study setting and data collection

To develop and refine a semi-structured interview guide, we conducted two pre-tests with researchers, some of them with additional working experience in a medical-therapeutic

profession. The interview guide entailed the opening question (“Now you all have to do with persons with a migration background in the healthcare context. Please take two minutes to remember specific situations from your everyday work – what challenges do you encounter there?”) and deepening questions to be asked in case the moderators felt some aspect had not yet been elaborated on, e.g., “How did you solve the situation eventually?”. The FGD were conducted at the University of Cologne. Each session lasted 120 minutes. Audio recordings of the discussions were transcribed verbatim in German language.

The basic category system

The data analysis followed the process of theory-guided qualitative content analysis which included a deductive-inductive categorization procedure (Kuckartz, 2019). Two researchers deductively developed a basic set of categories that reflected

- the research question: The healthcare professionals’ perceived challenges, needs, and applied solutions in communicating and interacting with patients with a migration background, and
- the four steps of health information processing: access, understand, appraise, and apply health information, as described in the underlying comprehensive model of health literacy (Sørensen et al., 2012).

These two deductive category groups were dimensionally ordered, i.e., a subcategory or text passage was always assigned to an aspect of the research question and to a processing step. For example, statements problematizing language barriers were assigned to the categories challenge and understanding health information. Based on this category framework, we conducted two analyses of the data, extracting inductive categories relevant for the respective research question.

Results

The qualitative data derived from the FGD were analyzed from two different angles, resulting in two refined versions of the basic category system described in the methods section. Therefore, the results of these two analyses are reported separately below for Study II and Study III.

Study II: Gender-specific aspects of health literacy in the context of migration

Research question

How does gender as a personal determinant of health literacy affect interactions with migrant patients from the perspective of healthcare professionals in Germany?

The category system

In the process of data analysis, we identified gender-related statements of the participants and grouped them into subcategories. These inductive categories were then subordinated into the predefined, deductively built category framework. The subcategories describe the connection of gender to health literacy:

- a) as a direct influence, described by gender-related subcategories or
- b) as an indirect influence, which is represented by general subcategories.

An overview of the most important categories is shown in Table 4. As the deductive category named needs usually mirrored challenges or applied solutions (e.g., the need for more time mirrored the challenge systemic lack of time), needs are not reported on here.

Table 4.*Condensed overview of the categories and subcategories used in Study II*

Categories derived from the guiding model (Sørensen et al, 2012)	Categories derived from the objective of the study	
	Challenges	Applied Solutions
Access	<ul style="list-style-type: none"> – Husbands as gatekeepers – The gender of healthcare professionals as a factor – Shame in the health care situation 	<ul style="list-style-type: none"> – Covering parts of the body to mitigate shame
Understand	<ul style="list-style-type: none"> – <i>Language barriers</i> – <i>Systemic lack of time</i> – Gender-specific aspects of language barriers 	<ul style="list-style-type: none"> – <i>Cultural and language mediators / interpreters</i>
Appraise	<ul style="list-style-type: none"> – Skepticism towards psychotherapy 	<ul style="list-style-type: none"> – Women as pioneers for the acceptance of psychotherapy

Note. Categories were derived deductively. Subcategories were inductively generated from the statements of the participants. General subcategories are displayed in italicized font, gender-related subcategories are displayed in non-italicized font.

STEPS OF HEALTH INFORMATION PROCESSING

The statements made in the FGD were mainly related to the processing steps access, understand, and appraise. None of the major subcategories related to applying health information.

Nevertheless, a clear-cut decision was often hard to make, as in the participants' descriptions some of the processing steps seemed to overlap, and the sequential order of the steps as proposed in the model could not always be reproduced. For example, language barriers clearly harm the understanding of health information, but this lack of understanding can also hinder access to health information as it may not even be recognized as such. For clarity, subcategories are assigned to the processing steps to which they correspond in the majority of cases. In the following paragraphs, the results of the analysis are ordered by processing step and related to challenges or applied solutions.

Access. The participants reported several gender-related challenges. Some described situations with husbands as gatekeepers who controlled or even prohibited the healthcare professionals' interaction with migrant women. While the husband's motivation to control access to his wife was not always clear to the participants, in most of the cases his aim was to ensure his wife would not be treated by a male person. In these cases, the gender of healthcare professionals as a factor influenced migrant women's access to treatment by male persons, while in some situations female participants reported their expertise being questioned due to their gender by male migrants. Examination of female migrants was sometimes hindered by the women's shame in the health care situation. Covering parts of the body to mitigate shame was described as a time-consuming, but viable applied solution in case nudity was the reason for shame.

Understand. As a general challenge, language barriers further complicated overcoming the gender-related issues, which was even more difficult due to the almost unanimously described systemic lack of time. Gender-specific aspects of language barriers were also reported, especially for first-generation migrant women of Turkish origin, whose level of education and German proficiency was perceived as low. A much demanded and, in some cases, already applied solution to improve understanding was the availability of health insurance-funded cultural and language mediators/interpreters.

Appraise. As a gender-related challenge, skepticism towards psychotherapy was seen as more prevalent in male than in female migrants. An emerging solution was observed in migrant women as pioneers for the acceptance of psychotherapy, with females of the second generation persuading their mothers to accept psychotherapy and a normalization of this kind of treatment subsequently spreading to men.

Study III: Systemic aspects of health literacy in the context of migration

In our first analysis, we noticed the influence of gender on health literacy being strongly connected to systemic factors. Therefore, we set out to perform a second qualitative content analysis of the data. This time, we took a broader perspective.

Research question

How do societal and environmental determinants, situational conditions, and personal factors influence health literacy in transcultural treatment settings from the perspective of healthcare professionals?

The category system

From the integrated model of health literacy, we derived categories representing factors that influence health literacy (called *determinants* in the model), i.e., societal and environmental, situational, and personal factors. As these factors had a general influence on health literacy, we did not subordinate them to the processing steps, but created them as separate main categories. Table 5 provides a condensed overview of the category system.

Table 5.

Condensed overview of the categories and subcategories used in Study III

Categories derived from the guiding model (Sørensen et al, 2012)	Categories derived from the objective of the study	
	Challenges	Applied solutions
Factors that influence health literacy		
Societal and environmental factors	– Systemic lack of time and economic pressure	– Investment of additional, unpaid time – Falling back on stereotypes and prejudices to save time
Situational factors	– Planning and controlling the current workload in outpatient care	
Personal factor: healthcare professionals' migration background	– Ad hoc interpreting outside one's own treatment situation	– Refusal of interpreting for others or providing treatment in native language – List of staff who speak foreign languages
Processing steps		
Access	– Mismatch between provision and actual use of health services	– Easily accessible services and outreach counselling
Understand	– Uncertainty about the causes of unsuccessful communication	– Recourse to professional interpreters and cultural mediators – Recourse to lay interpreters (medical staff, relatives)
Appraise	– Insecurity in dealing with patients' needs and expectations – Patients' distrust in healthcare professionals and the German health system	– Initiating unnecessary examinations to regain patients' trust
Apply	– Patients' non-compliance with medical appointments	– Patience in communicating health information to patients

Note. Categories were derived deductively. Subcategories were inductively generated from the statements of the participants.

Following the structure of the category system, the results drawn from the participants' statements are subordinated to the different factors that influence health literacy, or to the processing steps access, understand, appraise, and apply. Furthermore, their classification as either a challenge or an applied solution is described.

FACTORS THAT INFLUENCE HEALTH LITERACY

Societal and environmental factors. The participants reported that, in the context of migration, challenges related to the delivery of healthcare appeared to be intensified. Systemic lack of time and economic pressure were mentioned as particularly stressful when trying to overcome linguistic or cultural barriers.

The most frequently applied solution to tackle this problem was the investment of additional, unpaid time at the expense of the participants' personal free time. Sometimes, the overwhelming pressure could lead to cognitive automatisms on part of healthcare professionals such as the recourse on stereotypes and prejudices (for example, downplaying pain described by migrants as "morbus mediterraneus"), leading to inappropriate treatment of migrant patients.

Situational factors. The situational factor of planning and controlling the current workload in the outpatient care was stated as a challenge in medical (physical) outpatient care, also due to patients' non-compliance.

Personal factors. Half of the participants had a migration background, a personal factor influencing health literacy and often connected to proficiency in the language spoken in their country of origin. Some reported that being obliged to ad hoc interpreting outside one's own treatment situation was a stressful challenge as it added to the high workload and brought additional responsibility for them. Sometimes, the refusal of interpreting for others or providing treatment in native language was their applied solution for this dilemma. Lists of staff speaking foreign languages who could be called for ad-hoc interpreting existed in some of the participants' organizations and were generally seen as a positive applied solution, as inclusion in those lists was voluntary.

STEPS OF HEALTH INFORMATION PROCESSING

Access. Regarding access to health information, a challenge described was the mismatch between the provision and the actual use of health services, and difficulties in reaching persons with a migration background. Easily accessible services and outreach counselling (direct personal or telephone contact) were perceived as helpful applied solutions.

Understand. To mutually understand each other was a major theme in the FGD. Healthcare professionals described uncertainty about the causes of unsuccessful communication as a challenge when communicating with migrant patients. One applied solution almost unanimously described as helpful was the recourse to professional interpreters and cultural mediators. Interpreting via video conference was regarded as quickly available and timesaving. The recourse to relatives or medical staff as lay interpreters could help in some situations but was no adequate replacement for professional interpreters.

Appraise. Many healthcare professionals reported insecurity in dealing with patients' needs and expectations, especially in cases of patients with low language proficiency, describing the appraisal of the patients' information as a tricky challenge. Almost all participants reported patients' distrust in healthcare professionals and the German health system in persons with a migration background, who often suspected they were being discriminated against by German healthcare professionals. In contrast, healthcare professionals who had a migration background themselves frequently felt to be regarded as more trustworthy by migrant patients. Some participants without migration background reported to sometimes initiate unnecessary examinations to regain patients' trust when migrant patients seemed to suspect discrimination, an applied solution regarded as inefficient and costly.

Apply. Regarding the processing step apply, a central challenge in the outpatient care of patients with a migration background was patients' non-compliance with medical appointments due to their lack of knowledge of the German healthcare system. For these patients, some healthcare professionals emphasized the importance of patience in communicating health information to patients in a friendly way as an applied solution.

Discussion

The aim of these qualitative studies was to investigate gender-related aspects and systemic factors that shape transcultural interactions from the perspective of healthcare professionals in Germany. Although the term migration background includes second-generation migrants as well, the participants mostly talked about their experiences with first-generation migrants, mainly relating to Turkish and Arab migrants.

Study II: Gender-specific aspects of health literacy in the context of migration

Three main gender-specific challenges related to the access to health information emerged from these statements: Husbands as gatekeepers regulating access of their wives to health care, the gender of healthcare professionals as a factor that could keep migrant women from receiving treatment or care from male healthcare professionals, and shame in the health care situation hindering proper examination especially of Muslim women. The participants rarely tried to provide explanations for such situations. Even though they often identified respective patients as Muslims, the role of religion was not discussed. In Islamic regions, health is often perceived as a family affair (Bose & Terpstra, 2012), and Muslim husbands may feel especially responsible for the health of their wives (Widiasih & Nelson, 2018). There is some evidence for the importance of gender concordance with the healthcare professionals for women of Islamic faith in general (Padela, Gunter, Killawi, & Heisler, 2012) and for Turkish women in Germany in particular (Berens, Yilmaz-Aslan, Spallek, & Razum, 2016). Some studies also found restraint in Muslim women concerning nudity (Kawar, 2013). These categories show that the impact of gender on health literacy within the health care situation depends on the genders of all persons involved and on their respective interpretations and expectations regarding gender roles.

Against the background of systemic lack of time, the second general challenges subcategory, language barriers, was described to impair examinations and treatments and seems to be related to the processing step of understanding. This impact was further reinforced by gender-specific aspects of language barriers. This finding is in line with research documenting a lower

level of German proficiency within the group of elderly Turkish women as compared to other migrant groups (Haug, 2008). Skepticism towards psychotherapy, affecting the appraisal of health information, has been found as particularly prevalent in migrants from Turkey in former research (Bretz, Sahin, Brandl, & Schouler-Ocak, 2019). This skepticism is known to be more common in men than in women in general (J. L. Johnson, Oliffe, Kelly, Galdas, & Ogrodniczuk, 2012; Pattyn, Verhaeghe, & Bracke, 2015; Yousaf, Grunfeld, & Hunter, 2015). Here, the participants mentioned it especially regarding men from Turkey and Arabia.

Gender aspects seem to act as a reinforcing factor for the general time problem within health care in Germany. In the case of migrants, overcoming language barriers during clinical consultations takes time. If these barriers are higher, for example due to gender-specific reasons as in the case of the elderly Turkish women's low proficiency in the German language, communication takes even more time. In case it is necessary for these patients to undress in the health care setting, shame may additionally slow down the process. If the treatment is provided by a male person, shame may play an even more important role and can stall the process even further. These phenomena were mostly seen in specific subpopulations, and we may not be able to understand them without considering cultural and religious aspects that should be analyzed in further research.

The participants also reported on applied solutions to solve the challenges they had elaborated on. Regarding access to health care, the gender-specific solution covering parts of the body to mitigate shame of Muslim women was seen as a feasible, albeit cumbersome solution. As a general solution for addressing the processing step of understanding, some had already worked with cultural and language mediators/ interpreters, most of them reporting positive results, which corresponds to studies focusing on the effectiveness of interpreter services (Bischoff et al., 2003; Jacobs, Shepard, Suaya, & Stone, 2004). Although being a general solution, this could also help with gender-specific aspects of language barriers, e.g., by diminishing misunderstandings. Regarding the processing step of appraisal, the gender-specific solution women as pioneers for the acceptance of psychotherapy seems especially remarkable in several

ways, as it is a) a solution coming from the migrants themselves and b) an example for the (self-) empowerment of women being advantageous to men as well.

Study III: Systemic aspects of health literacy in the context of migration

Time and resource constraints are well known issues in many health systems worldwide (Birkhäuser et al., 2017). The participants in the present FGD perceived these conditions as highly stressful. This was even more the case when treating migrant patients – the need for more time to overcome communication barriers or to explain cultural and organizational issues emphasized the existing pressure. For healthcare professionals with a migration background this was even more pronounced when they were obliged to act as ad hoc interpreters for patients with low language proficiency. Distrust in the German healthcare system and its representatives on the side of the patients, insecurity or even stereotyping of migrants on the side of the healthcare professionals further hindered the mutual flow of information and the utilization of health services. This is in line with research describing distrust as an important barrier to healthcare access (Santalahti, Sumit, & Perkiö, 2020) and the usage of cognitive shortcuts as stereotypes in situations when people must process complex information under time pressure (Chaiken & Ledgerwood, 2011). Participants emphasized the need for interpreters and cultural mediators as they saw mutual understanding in the treatment situation as a cornerstone for improving health literacy of patients and providers. This finding is supported by other studies that include the perspectives of either health professions (Suphanchaimat, Kantamaturapoj, Putthasri, & Prakongsai, 2015) or migrant patients (Hadziabdic, Albin, & Hjelm, 2014). More than half of the participants had a migrant background themselves. These healthcare professionals found that this personal factor positively influenced the establishment of trustful relationships and the acceptance of treatment recommendations. In line with this, a recent study from Germany found that a shared migrant background improved trust in the physician, reduced reactance-related outcomes, and improved prevention-related knowledge transfer in patients with a Turkish migrant background, especially in those with low health literacy (Arendt & Karadas, 2019).

Implications for research and practice

Further studies in different countries with diverse health systems are needed to develop appropriate interventions for improving health literacy at the individual and organizational levels. These studies should involve healthcare professionals and people with a migration background to ensure equitable healthcare. Health care organizations will continue to serve patients of increasing diversity and therefore have to be health literate and culture-sensitive and should maintain a diverse workforce. Financial support, including funds for interpreting services, and education programs by public institutions can help to achieve these goals.

Strengths and Limitations

To the best of our knowledge, these are the first studies that aimed to investigate the health literacy-related challenges, needs, and applied solutions in transcultural treatment settings from the perspective of healthcare professionals by applying an established health literacy framework (Sørensen et al., 2012).

There are several limitations to these studies. First, it might be the case that the research question provoked generalizations about the diverse group of migrants. We asked the participants in the FGD to refer to specific situations, as we aimed to prevent this. Second, it cannot be ruled out that stereotypes about persons of Islamic faith, for example about male Muslims (Hopkins, 2006; Terkessidis, 2015) shaped some of the statements of the participants, despite of 50% of them having a migration background themselves, and notwithstanding the empathic way they talked about their patients. With anti-immigration and anti-Islamic movements rising all over Europe (Czaika & Di Lillo, 2018; Fekete, 2004), this is a delicate ethical matter. Nevertheless, as the participants reported situations in which migrant women experienced serious health care disadvantages, we think these findings are important and should be reported. Third, qualitative research is not aimed at representativeness (Sandelowski, 2008). This is also true for this study, as neither the participants are a representative selection of healthcare professionals, nor the situations they described can be considered representative for

the interaction with migrants. In most cases, gender-specific observations made by the participants were limited to migrants from Turkey and Arab countries.

Exploring the challenges, needs and applied solutions with regard to achieving optimal health care within different subpopulations of migrant men and women by letting them state their own perspective was outside the scope of this project. From our view, this would be the logical next step for further research to gain a more complete picture about gender-related aspects of health literacy in interactions with migrant patients.

Conclusion

Our research provides insights into the special role of gender in health literacy as perceived by healthcare professionals when interacting with migrant patients mainly from Turkey and Arab countries. From the participants' point of view, gender-specific challenges can result in consequences for the way in which health-related information is accessed, understood, and appraised in cross-cultural health care situations. Meeting these challenges by reducing time pressure and providing resources for improving communication may be to the benefit of all actors within the health care sector. Systemic factors such as lack of time and economic pressure appear to be intensified in transcultural treatment settings. They interact with situational and personal factors such as gender. The interplay of these factors leads to an impeded flow of information in all treatment settings. As health care organizations will continue to serve patients of increasing diversity, they have to be health literate and culture-sensitive and should maintain a diverse workforce. Financial support, including public funds for interpreting services, and education programs can help to achieve these goals.

Chapter five: General discussion

Main findings

This dissertation applied a multi-method approach to explore gender aspects of health literacy in persons with a migration background. The first study, a systematic review and meta-analysis, found slightly better health literacy in migrant women as compared to migrant men. The two following articles explored health literacy of migrants from the perspective of healthcare professionals in Germany. One of these qualitative analyses focused on gender-specific aspects such as the need for gender-concordant doctor-patient-dyads. These gender aspects interacted with migration-specific problems such as language barriers, both amplifying systemic issues such as lack of time. The second analysis of the same qualitative data looked further into these systemic aspects. Here, systemic time pressure was described to have detrimental effects on healthcare professionals and patients, especially in intercultural treatment settings, and the fundamental importance of successful communication between healthcare professionals and patients was emphasized. In the following paragraphs, results from the systematic review and meta-analysis (Study I) and those from the qualitative analyses (Study II and III) are discussed in relation to each other. This led to five major findings, which are mapped to the initially stated research questions.

RQ 1: Are there gender differences of health literacy in persons with a migration background, assessed with standardized instruments to measure health literacy?

Finding 1: Female may have higher health literacy than male migrants.

The results of the meta-analysis revealed a slight overall advantage for migrant women in quantitative health literacy scores as compared to migrant men. This finding was matched by a phenomenon reported by the participants of the FGD: Self-developed solutions within the migrant communities came almost exclusively from female migrants. For example, the

participants described second-generation Turkish women as pioneers for the acceptance of psychotherapy in their communities, also convincing first-generation women as well. This corresponds to a recent online survey conducted in Turkey ($n = 4624$) that found women to primarily rely on friends and family as sources of health information, whereas men rather preferred newspapers (Geçer, Yıldırım, & Akgül, 2022). The majority of first-generation Turkish immigrants use media from Turkey (Sauer, 2010) which are unlikely to report on how to get psychotherapy in Germany, and access to psychotherapy differs profoundly between the two countries (Coşan, 2015). Thus, the female advantage in this realm may be connected to their reliance on personal communication when finding health information, which is in line with studies that found women to generally communicate more with each other about health topics than men (Ek, 2015; Jackson, Ervin, Gardner, & Schmitt, 2001; Kayser, Hansen-Nord, Osborne, Tjønneland, & Hansen, 2015).

RQ 2: How are gender-specific and systemic aspects of health literacy in intercultural treatment settings experienced by healthcare professionals in Germany?

RQ 2 is further specified into two partial questions, the first regarding gender aspects, the second focusing on systemic aspects of health literacy in transcultural treatment settings.

RQ 2a: How does gender as a personal determinant of health literacy affect interactions with migrant patients from the perspective of healthcare professionals in Germany?

Finding 2: Health literacy is gender-specific.

The ways in which male and female migrants access, understand, appraise, and apply health-related information, were described as very different in the qualitative studies. The participants of the FGD talked mainly about gender specifics, not so much about gender differences. For example, shame when undressing in the treatment situation was reported for women only. Exclusively for men, it was stated that some of them did not recognize the competence of female healthcare professionals. Relating these qualitative findings to the quantitative results, the following conjecture emerges: Even if a man and a woman achieved the exact same score

measured using e.g., the HLS-EU-Q47, this score might stand for two totally different stories. Men and women may encounter different health literacy-related challenges and develop specific strategies to handle them. This pattern – different strategies, similar results in men and women – may apply to the general population as well, as it has also been found in fields as diverse as executive functions (Grissom & Reyes, 2019), stress and coping (González-Morales, Peiró, Rodríguez, & Greenglass, 2006), speech production (Koenig, 2000) and muscle activity (Srinivasan, Sinden, Mathiassen, & Côté, 2016). In this regard, it seems consistent that the gender differences we found in our meta-analysis were very small ($SMD = .08$; 95% CI [0.002 – 0.159]; $p = .04$), as it is the case with most gender differences reported in psychology (Hyde, 2014).

Finding 3: The genders' health literacies are interdependent.

Men's and women's health literacies may differ quantitatively and qualitatively, but they are not completely separate entities. They interact, and they are mutually dependent.

Two examples raised in the FGD may underline this conclusion:

1. The phenomenon of women as pioneers for the acceptance of health literacy, with second-generation female migrants convincing their mothers to accept psychotherapy, and men slowly starting to do so as well. The second-generation women's high health literacy in this regard had a positive impact on that of their mothers, and possibly a direct or indirect positive effect on migrant men's health literacy.
2. Husbands as gatekeepers, i.e., a man not allowing his wife to be treated by a male doctor. Here, the husband's health literacy might have suffered from a lack of trust in the health system and its representatives, maybe in combination with a rigid understanding of gender roles. This aspect of the man's health literacy then diminished his wife's health literacy by disabling her from accessing the health information she would otherwise have exchanged with the healthcare professional.

These examples illustrate that health literacy is not a static trait, but a dynamic, interactive process involving different generations and genders. Health literacy can be contagious, which is

encouraging in the positive cases, but this finding also has its downside: If a man prevents his wife from being treated by a male healthcare professional, his health illiterate behavior is the limiting factor – regardless how health literate his wife might be. It may be that this interdependence of men’s and women’s health literacies also contributed to the small effect size of gender differences of health literacy in migrants as measured in the meta-analysis in Study I.

Finding 4: There is little known about migrant men’s health literacy.

One important result of Study I is the scarcity of research on male migrants’ health literacy, as we found 27 studies on the health literacy of female migrants only but none on that of exclusively male migrants. This is in line with the observation that there is little research on men’s health literacy in general (Oliffe et al., 2020). Participants of the FGD did not provide explanations for the gender-specific behavior they had observed in men. They, too, seemed to lack information on migrant men’s health literacy.

RQ 2b: How do societal and environmental determinants, situational conditions, and personal factors influence health literacy in transcultural treatment settings from the perspective of healthcare professionals?

Finding 5: Health literacy of migrants can serve as a magnifying glass.

A repeating pattern emerged in Studies II and III: Issues that affect the entire population showed up in migrants as if under a magnifying glass. For example, communication between healthcare professionals and patients has been described as challenging for both sides regardless of the patients’ origin (Moore, Rivera, Bravo-Soto, Olivares, & Lawrie, 2018; Pilnick & Dingwall, 2011; Tulsy et al., 2017). In the FGD, language issues and gender aspects (e.g., nudity shame) were described to make communication between healthcare professionals and migrants even more difficult. Furthermore, a preference for being treated by a gender-concordant healthcare professional has been found in parts of the general population in Germany, specifically for women regarding gynecologists (Spaich, Weiss, & Sütterlin, 2019), while it was reported for

migrant women regardless of the participants' concrete profession in the FGD. Another example relates to men exerting power over women's bodies, a topic frequently raised by feminist scholars (Dworkin, 1989; Sultana, 2012). The criminalization of abortion has been – and still is, as current events in the U.S. suggest (Harris, 2022) – a common instance for this phenomenon (Chesney-Lind & Hadi, 2017), also in Germany (Clasen, 2019; Gerstendörfer & Jütte, 1996). Thus, the unsettling phenomenon of some migrant husbands restricting the treatment of their wives, as mentioned in the FGD, has an equivalent in the major population, where it is expressed in a less obvious and direct way. Current research regarding the situation of migrants in Germany during the Corona pandemic can also be interpreted as supporting the magnifying glass effect. A higher rate of infections (mostly due to crowded living, commuting and working situations) was found in migrants worldwide (Jaljaa et al., 2022). In Germany, lower rates of vaccinations (Wulkotte, Schmid-Küpke, Neufeind, & Wichmann, 2022) and a higher susceptibility for COVID-19-related conspiracy theories (Jensen et al., 2021) were observed in migrants as compared to the general population. All these issues can also be found in the general population (Pavela Banai, Banai, & Mikloušić, 2021; Wulkotte et al., 2022), albeit in a less pronounced way.

Consequently, the quantitative gender differences in health literacy we found in the meta-analysis in Study I may be matched by a similar, possibly weaker tendency in the major population. However, as there is currently no meta-analysis on general gender differences in health literacy to my knowledge, this remains a hypothesis.

Implications for research

Gender

First of all, a systematic review and meta-analysis of general gender differences of health literacy is necessary, also to compare the results of Study I to those yielded by examining the general population. Additionally, it should further be explored which gender-specific strategies (Finding 2) lead to female migrants' higher health literacy (Finding 1) in order to further strengthen these behaviors; that includes the predominantly female refugees from the Ukraine who are currently

coming to Germany (Brücker et al., 2022) and who may already be implementing such strategies. Future research should also look into the gender-specific health literacy of migrant men (Finding 2) to explore the reasons for their slightly lower health literacy (Finding 1). Moreover, the interactions of gender with variables such as education, culture, class, religiosity, and age should be investigated, which was not possible with the data we retrieved in Study I. It also seems highly desirable to go beyond the man-woman dichotomy and incorporate measures for gender roles, femininity and masculinity that may be of greater explanatory power than the mere classification into a gender category. Furthermore, when conducting Study I it appeared difficult to retrieve the data from many studies that we assumed to have measured gender-specific health literacy scores. Still, overcoming the limitations of small sample sizes in single studies and answering questions not posed by the original research are basic strengths of meta-analyses (Deeks, Higgins, & Altman, 2022). In many fields of research, simply looking at the data from a gender perspective has led to surprising results, often revealing serious disadvantages for women (for an overview, see Criado-Perez, 2020). Therefore, gender-specific results of any research should be published regardless of their statistical significance in order to allow researchers to pool and meta-analyze the data. Publishing data in publicly available repositories such as the Open Science Framework (Centre for Open Science, 2021) can also be helpful in this regard.

In Finding 4, a lack of research on (migrant) men's health literacy was stated. For a long time, most health research was research on men, and women were (and still are in many areas) marginalized (see the section on Gender, androcentrism, and health, p. 13). Nevertheless, there are serious issues in men's health that should be given more attention (P. Baker, 2020), and in some areas (e.g., prevention) men's health behavior lags far behind that of women (Hiller et al., 2017). The results of our systematic review and meta-analysis, detecting higher health literacy in female than in male migrants (Finding 1), point in the same direction. Given the interdependence of men's and women's health literacies as described in Finding 3, a lack of knowledge about men may also hinder the understanding of women's health literacy. Feminist philosophers have been arguing for a conception of human beings as relational and interdependent rather than seeing them as disconnected and atomistic individuals for a long time (Daly, 2021; Mackenzie, 2019).

Therefore, it seems important that research should examine how such interdependence works and in which areas it requires particular attention.

Migration

Examining health literacy and health behavior in migrant populations is necessary to ensure an adequate provision of health care for these groups. At the same time, assuming the postulated magnifying glass effect (Finding 5) holds true, issues that may concern the whole of society could be observed more clearly and maybe detected even earlier in migrant populations. Such an approach to research on migrants could facilitate seeing *them* not as separate *others* (Grove & Zwi, 2006) but as one of the many parts that form society, a part of *us*.

From a conceptual perspective, the construct of *persons with a migration background* is ambiguous and imprecise, as it denotes both first- and second-generation migrants. International research usually focuses either on first-generation migrants or on ethnic minorities, as we found when searching for studies to include in the systematic review. Likewise, participants of the FGD almost exclusively mentioned first-generation migrants. Regarding health literacy, they saw no differences in second-generation migrants as compared to the major population. This is in line with results of a recent study on health literacy in persons with Turkish and (former) Soviet migration background in Germany, which found first-generation migrants, but not second-generation migrants to have lower health literacy than the general population (Berens, Klinger, Mensing, Carol, & Schaeffer, 2022). Researchers have argued that the term migration background generally tends to homogenize a group of persons too diverse to be homogenized (El-Mafaalani, 2017; Will & Nowicka, 2021). For future research, this indicates that the term should not be used when examining direct migration experiences, as members of the second generation have, by definition, not migrated themselves. Also, belonging to an ethnic minority (or being categorized as such by the general population) can include members of more than two generations (Kizilhan, 2012; J. Park, An, Stodolska, & Santos, 2021; Tsuda, 2015). Therefore, it is debatable whether the term migration background is of any positive utility at all (Will, 2019).

Health literacy

Applying the integrated model of health literacy (Sørensen et al., 2012) helped to structure and to analyze the data we retrieved from our FGD. Instead of using the model to solely describe one's understanding of health literacy, relating research to its components (e.g., the processing steps access, understand, appraise, and apply health information) can be useful to gain a better understanding of health literacy, to identify research gaps, and to link the findings from different studies (also from those using different methods) to each other. Sophisticated assessment tools such as the HLS-EU-Q (Sørensen et al., 2013) enable the analysis of their results with regard to subdomains such as the processing steps or application areas (e.g., prevention). This could also be helpful for further analysis of gender specifics. Nevertheless, despite incorporating societal and environmental aspects, the underlying model is limited to individual health literacy. The same accounts for the measurement instruments mentioned in this dissertation, all of which measure health literacy of individuals regarding their own health. Still, Finding 3, describing the interdependence of the genders' health literacy, hints to an important and rarely examined aspect of health literacy, namely the ability to access, understand, appraise, and apply information about the impacts of one's own behavior on other people's health which could also be called *social health literacy*. During the Corona pandemic the importance of this ability became particularly clear. COVID-19-related decisions such as wearing a face mask, applying social distancing, getting vaccinated or staying quarantined when infected (Ullah, Khan, Tahir, Ahmed, & Harapan, 2021) strongly relate to the health of others. However, up to now, most health literacy research looks into the social aspects mainly to describe their impact on the individual's health literacy or the joint effect of the health literacy of individuals on the community (Pitt et al., 2019). The social aspect of health literacy in the sense of knowing about the impact of one's own behavior on other people's health is rarely investigated. Nevertheless, theoretical and practical inspiration could come from studies examining parental (Buhr & Tannen, 2020) and caregivers' health literacy (Yuen, Knight, Ricciardelli, & Burney, 2018), since the health literacy of both parents and caregivers has a direct impact on the health of the people entrusted to their care. Social health literacy should be further researched, incorporated into the comprehensive model

of health literacy (Sørensen et al., 2012), and mapped by items in measurement tools such as the HLS-EU-Q (Sørensen et al., 2013).

Methodology

Regarding methodology, a mixed-methods or multi-method approach, as applied in the current research context, has many advantages. Quantitative measures of health literacy are helpful for detecting general (gender) disparities (Finding 1) and efficient for clinical screenings. For exploring the concrete situation of a migrant population and the role of gender in the respective context, qualitative research methods may be more appropriate to capture complex interdependencies and contexts, and can help to make sense of the quantitative findings (Bryman, 2006). As men and women might achieve similar results using different strategies (Finding 2) and the health literacies of the genders seem interdependent (Finding 3), this should also be done in case there are no quantitative gender differences. Also, qualitative syntheses, as described in the first protocol listed in the Related publications (Aldin et al., 2019) can help to condense existing qualitative results and relate them to quantitative research (Harden et al., 2018). Especially in the case of migrant communities, who may be skeptical against institutions, a participatory research approach can help to build trust (Aberdeen, 2015) and should be implemented in future research.

Implications for practice

Systemic implications

First, as systemic problems such as time pressure have an especially harsh effect on marginalized groups as migrants (Finding 5), it seems obvious that a better-equipped health care system may have a particular positive effect on migrant's health literacy – if there is more time, there is more opportunity to build trust, more time to exchange health information in the treatment setting, more time to overcome gender-specific barriers such as shame, and probably less stereotyping on side of healthcare professionals (Stepanikova, 2012). However, time pressure is a well-known

and often-discussed problem within the German health care system (Scherer, Hierdeis, & Berghold, 2020), and there is no quick solution in sight. Overcoming the language barrier may be a more realistic goal. An ad-hoc solution, as suggested in our FGD, can be the involvement of health-insurance covered medically trained interpreters. Being able to communicate in a shared language can eliminate major misunderstandings and help to build trust (Binder, Borné, Johnsdotter, & Essén, 2012), and a lack of trust may be a driving force in some gender-specific challenges such as the protective behavior of men towards their women. Trust can also be established by building a health workforce that includes persons with a migration background (Arendt & Karadas, 2019), as the statements of participants with migration background in the FGD underlined. In Germany, this would mean to have more persons of Turkish and Arab (and, as the current situation indicates, Ukrainian) origin as, e.g., doctors, nurses, and psychotherapists. To achieve this goal, it is necessary to remove the barriers to upward mobility that exist particularly in the German educational system, especially for persons with a migration background (El-Mafaalani, 2012). Again, this this is an issue often raised and rarely tackled, and a huge topic that reaches far beyond the scope of this doctoral thesis.

Gender-specific implications

An important insight of the research presented here is that the health literacies of the genders are interdependent (Finding 3). Therefore, interventions to strengthen the health literacy of women may also act on the benefit of the men's health literacy, and vice versa. However, that does not mean that it is sufficient to address one gender only. Although the empowerment of women has been, and still is, a priority in many areas of health education for very good reasons, it may be a mistake to neglect the male gender, as it currently seems to be the case in health literacy research (Finding 4). If men perceive the empowerment of women as a zero-sum game, with themselves in the losing position (Kuchynka, Bosson, Vandello, & Puryear, 2018), this may lead to tensions within the families (Ruthig, Kehn, Gamblin, Vanderzanden, & Jones, 2017). But if men are included – e.g., as participants of parallel interventions tailored to men's needs – there may be a higher chance they perceive more equality as a win-win situation (Holter, 2014). For the development and implementation of interventions targeting health literacy, a participatory

approach seems most promising (Jagosh et al., 2012). Participatory intervention development arguably produces solutions that are highly accepted by the communities and can have long-lasting, positive effects (van den Muijsenbergh et al., 2020). Furthermore, participative methods allow the participants to provide their own solutions that may also be viable for other populations. Thus, the view on gender and migration could be switched from a problem-focused to a resource-oriented approach (Pelters, Lindgren, Kostenius, Lydell, & Hertting, 2021).

General strengths & limitations

A particular strength of this dissertation lies in the application of multiple methods for connecting quantitative gender differences of health literacy in migrants to the perceptions of healthcare professionals on how gender exerts its influence on health literacy in transcultural treatment settings. To my knowledge, Study I is the first systematic review and meta-analysis on gender differences of health literacy in migrants. It includes previously unpublished data from 15 studies. Studies II and III apply a novel approach to examine health literacy in migrants by using the integrated model of health literacy as a framework for qualitative content analysis.

There are several limitations to this dissertation. First, the perspective of migrants was not included for practical reasons. We felt that we could not thoroughly explore the migrants' perspective with the financial and time resources at hand. One main reason was that dealing with the language barrier would either involve costly and time-consuming solutions such as hiring translators or native-speaking research staff, or it would otherwise be necessary to exclude participants with low levels of German proficiency. However, half of the healthcare professionals who took part in the qualitative studies had a migration background themselves, and all of them had worked with migrants of multiple origins, so that a broad range of impressions could be incorporated into the qualitative data. Ironically, the challenges posed to our research were the very same challenges as described by the participants in the FGD regarding their own work with patients with a migration background, namely a lack of time and money. These problems hindered us from implementing similar solutions as the healthcare professionals had proposed

for their own work – take more time and/or hire translators to successfully communicate with migrants. And in the end, the participants of our FGDs who had a migration background were the ones to step into the breach: as translators for migrant patients in their own work, and as representatives of persons with a migration background in ours.

As with research on minorities in general, research about migrants always runs the risk of reproducing stereotypes and contributing to discrimination simply by subordinating them to a common category. Still, since migrants have been consistently identified as a disadvantaged group, the only way to address these disadvantages is to examine them as a group in an appropriately careful and sensitive manner, which is what I have tried to do in this dissertation.

Second, there is a clear man-woman-dichotomy in all parts of this dissertation. Other genders are not mentioned, and gender roles are not deeply explored. The reason for this is that gender was not reported beyond this dichotomy in the research we reviewed in Study I – if it was reported at all. In the FGD described in Studies II and III, participants consistently referred only to the dichotomy of women and men as well. Furthermore, non-heterosexual persons and relationships were not mentioned. Hence, the findings of the research presented here are limited to gender differences and gender specifics in cisgender, heterosexual migrant men and women. Finally, two major events took place while I was writing this doctoral thesis: the Corona pandemic and the Russian invasion of Ukraine. These events began after the studies presented here were conducted. However, as these events are of great importance to my research topics, I relate to them where it seems appropriate to do so.

General conclusion

To summarize, the present thesis project revealed a slightly higher health literacy in female compared to male migrants in a systematic review and meta-analysis, and a notable lack of research on migrant men's health literacy. At the same time, instead of making comparisons between men's and women's health literacy, healthcare professionals participating in FGD described health literacy mainly as gender-specific. They reported different challenges and

applied solutions for men and women in transcultural treatment situations. Moreover, the genders' health literacies seem to be interdependent, as men's and women's handling of health information was described to interact and mutually influence each other. Further research should also look into gender differences in the health literacy of the major population, and into the influence of gender roles on health literacy. In the context of migration, future research should explore the strengths and shortcomings of each gender's health literacy, study the health literacy of men, and investigate the interdependence of men's and women's health literacies more deeply. In doing so, the application of mixed-methods approaches and participatory research can help to better understand the complex interactions of gender, health literacy, and migration. As researching health literacy in migrants may reveal issues also concerning the general population as if viewed under a magnifying glass, these findings could apply to the general populations as well. Interventions for strengthening female and male migrants' health literacy should be developed in a participative manner to establish trust and allow for the creation of solutions coming from the respective migrant communities. Meanwhile, the establishment of insurance-covered interpreters and cultural mediators is recommended for mitigating the communication problems that harm the mutual understanding of migrants and healthcare professionals in a health care system marked by systemic time pressure.

Epilogue

So what do the findings of this dissertation mean for the imaginary migrants described in the preface of this document? Both, the woman, and the man, may have different strategies to cope with their health issues. Maybe the woman has a slight advantage, as she might be more open to communicate with others about how to solve her medical problem. There is a good chance that she will be in exchange with other women, who share their own experiences with her. If the man and the woman are a couple, each one's health literacy could limit that of their partner – or enhance it. She might persuade her partner to accept psychotherapy. He may try and forbid her visiting a male physician, or he might offer to accompany her in case she is unsure. At any rate, if they could find healthcare professionals of the same origin as themselves, or translators able to solve language issues, they would be in a profoundly better situation. After all, once the language barrier can be overcome, the problems the two migrants face do not differ much from that of other patients. Most importantly, one should hope for a welcoming, inclusive society and a well-equipped health care system awaiting them to jointly deal with the challenges that come with gender, health literacy, and migration.

References

- Abdel-Latif, M. M. M. (2020). The enigma of health literacy and COVID-19 pandemic. *Public Health, 185*, 95–96. <https://doi.org/10.1016/j.puhe.2020.06.030>
- Aberdeen, T. (2015). “Research with” instead of “Research on”: Action research with “vulnerable” participants: A guest editorial. *Canadian Journal of Action Research, 16*(2), 1–5.
- Ainsworth, C. (2015). Sex redefined. *Nature, 518*(7539), 288–291. <https://doi.org/10.1038/518288a>
- Aldin, A., Chakraverty, D., Baumeister, A., Monsef, I., Noyes, J., Jakob, T., . . . Skoetz, N. (2019). Gender differences in health literacy of migrants: A synthesis of qualitative evidence. *Cochrane Database of Systematic Reviews, 5*(1), 8. <https://doi.org/10.1002/14651858.CD013302>
- Alexandridi, M., Mazej, J., Palermo, E., & Hiscott, J. (2022). The Coronavirus pandemic – 2022: Viruses, variants & vaccines. *Cytokine & Growth Factor Reviews, 63*, 1–9. <https://doi.org/10.1016/j.cytogfr.2022.02.002>
- American Psychological Association (2021). Psychology: APA dictionary of psychology. Retrieved from <https://dictionary.apa.org/psychology>
- Anderson, B., & Blinder, S. (2019). *Who counts as a migrant? Definitions and their consequences* (Migration Observatory briefing, COMPAS). Oxford, United Kingdom: University of Oxford.
- Arboleda, V. A., Sandberg, D. E., & Vilain, E. (2014). Dsds: Genetics, underlying pathologies and psychosexual differentiation. *Nature Reviews. Endocrinology, 10*(10), 603–615. <https://doi.org/10.1038/nrendo.2014.130>
- Arendt, F., & Karadas, N. (2019). Ethnic concordance in patient-physician communication: Experimental evidence from Germany. *Journal of Health Communication, 24*(1), 1–8. <https://doi.org/10.1080/10810730.2018.1549624>
- Armitage, R. (2022). War in Ukraine and the inverse care law. *The Lancet Regional Health Europe, 100401*. <https://doi.org/10.1016/j.lanepe.2022.100401>
- Aultman, B. (2014). Cisgender. *TSQ: Transgender Studies Quarterly, 1*(1-2), 61–62. <https://doi.org/10.1215/23289252-2399614>

- Baccolini, V., Isonne, C., Salerno, C., Giffi, M., Migliara, G., Mazzalai, E., . . . Villari, P. (2022). The association between adherence to cancer screening programs and health literacy: A systematic review and meta-analysis. *Preventive Medicine, 155*, 106927. <https://doi.org/10.1016/j.ypmed.2021.106927>
- Baker, D. W., Gazmararian, J. A., Williams, M. V., Scott, T., Parker, R. M., Green, D., . . . Peel, J. (2002). Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. *American Journal of Public Health, 92*(8), 1278–1283. <https://doi.org/10.2105/ajph.92.8.1278>
- Baker, P. (2020). Men's health policy: It is time for action. *Trends in Urology & Men's Health, 11*(6), 11–13. <https://doi.org/10.1002/tre.774>
- Barnes, M. W. (2015). Fetal sex determination and gendered prenatal consumption. *Journal of Consumer Culture, 15*(3), 371–390. <https://doi.org/10.1177/1469540513505606>
- Barua, Z., Barua, S., Aktar, S., Kabir, N., & Li, M. (2020). Effects of misinformation on COVID-19 individual responses and recommendations for resilience of disastrous consequences of misinformation. *Progress in Disaster Science, 8*, 100119. <https://doi.org/10.1016/j.pdisas.2020.100119>
- Bauer, P. J., & Coyne, M. J. (1997). When the name says it all: Preschoolers' recognition and use of the gendered nature of common proper names. *Social Development, 6*(3), 271–291. <https://doi.org/10.1111/j.1467-9507.1997.tb00106.x>
- Baur, C. (2011). Calling the nation to act: Implementing the national action plan to improve health literacy. *Nursing Outlook, 59*(2), 63–69. <https://doi.org/10.1016/j.outlook.2010.12.003>
- Beauchamp, A., Buchbinder, R., Dodson, S., Batterham, R. W., Elsworth, G. R., McPhee, C., . . . Osborne, R. H. (2015). Distribution of health literacy strengths and weaknesses across socio-demographic groups: A cross-sectional survey using the Health Literacy Questionnaire (HLQ). *BMC Public Health, 15*, 678. <https://doi.org/10.1186/s12889-015-2056-z>
- Bednaschewsky, R., & Supik, L. (2018). Vielfältig Deutschsein. Von Deutschen of Color und Deutschen mit Migrationshintergrund in der Statistik. In M. Gomolla, E. Kollender, & M. Menk

- (Eds.), *Rassismus und Rechtsextremismus in Deutschland: Figurationen und Interventionen in Gesellschaft und staatlichen Institutionen* (Vol. 1, pp. 179–194). Weinheim, Germany: Beltz.
- Beery, T. A. (1995). Gender bias in the diagnosis and treatment of coronary artery disease. *Heart & Lung, 24*(6), 427–435.
- Bem, S. L. (1993). *The lenses of gender: Transforming the debate on sexual inequality*. New Haven, CT: Yale University Press.
- Benyamini, Y., Leventhal, E. A., & Leventhal, H. (2000). Gender differences in processing information for making self-assessments of health. *Psychosomatic Medicine, 62*(3), 354–364. <https://doi.org/10.1097/00006842-200005000-00009>
- Berens, E.-M., Klinger, J., Mensing, M., Carol, S., & Schaeffer, D. (2022). *Gesundheitskompetenz von Menschen mit Migrationshintergrund in Deutschland. Ergebnisse des HLS-MIG*. Bielefeld, Germany: Universität Bielefeld, Interdisziplinäres Zentrum für Gesundheitskompetenzforschung (IZGK).
- Berens, E.-M., Yilmaz-Aslan, Y., Spallek, J., & Razum, O. (2016). Determinants of mammography screening participation among Turkish immigrant women in Germany – a qualitative study reflecting key informants' and women's perspectives. *European Journal of Cancer Care, 25*(1), 38–48. <https://doi.org/10.1111/ecc.12334>
- Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research, 15*(2), 219–234. <https://doi.org/10.1177/1468794112468475>
- Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine, 155*(2), 97–107. <https://doi.org/10.7326/0003-4819-155-2-201107190-00005>
- Best, D. L., & Puzio, A. R. (2019). Gender and culture. In D. R. Matsumoto & H. C. Hwang (Eds.), *The handbook of culture and psychology* (pp. 235–291). New York, NY: Oxford University Press. <https://doi.org/10.1093/oso/9780190679743.003.0009>
- Bidmon, S., & Terlutter, R. (2015). Gender differences in searching for health information on the internet and the virtual patient-physician relationship in Germany: Exploratory results on how

- men and women differ and why. *Journal of Medical Internet Research*, 17(6), e156.
<https://doi.org/10.2196/jmir.4127>
- Binder, P., Borné, Y., Johnsdotter, S., & Essén, B. (2012). Shared language is essential: Communication in a multiethnic obstetric care setting. *Journal of Health Communication*, 17(10), 1171–1186. <https://doi.org/10.1080/10810730.2012.665421>
- Birkhäuer, J., Gaab, J., Kossowsky, J., Hasler, S., Krummenacher, P., Werner, C., & Gerger, H. (2017). Trust in the health care professional and health outcome: A meta-analysis. *PLoS ONE*, 12(2), e0170988. <https://doi.org/10.1371/journal.pone.0170988>
- Bischoff, A., Bovier, P. A., Isah, R., Françoise, G., Ariel, E., & Louis, L. (2003). Language barriers between nurses and asylum seekers: Their impact on symptom reporting and referral. *Social Science & Medicine*, 57(3), 503–512. [https://doi.org/10.1016/S0277-9536\(02\)00376-3](https://doi.org/10.1016/S0277-9536(02)00376-3)
- Blau, F. (2015). *Immigrants and gender roles: Assimilation vs. culture*. Cambridge, MA: National Bureau of Economic Research. <https://doi.org/10.3386/w21756>
- Booth, A. [Alison], Clarke, M., Dooley, G., Gherzi, D., Moher, D., Petticrew, M., & Stewart, L. (2012). The nuts and bolts of PROSPERO: An international prospective register of systematic reviews. *Systematic Reviews*, 1, 2. <https://doi.org/10.1186/2046-4053-1-2>
- Bose, A. von, & Terpstra, J. (Eds.) (2012). *Muslimische Patienten pflegen: Praxisbuch für Betreuung und Kommunikation*. Berlin, Germany: Springer.
- Brabete, A. C. (2017). Examining migrants' health from a gender perspective. In M. P. Sánchez-López (Ed.), *The psychology of gender and health: Conceptual and applied global concerns* (pp. 231–250). Saint Louis: Elsevier Science. <https://doi.org/10.1016/B978-0-12-803864-2.00008-0>
- Bretz, J., Sahin, D., Brandl, E. J., & Schouler-Ocak, M. (2019). Kulturabhängigkeit der Einstellung gegenüber psychotherapeutischer Behandlung bei Türkeistämmigen und Personen ohne Migrationshintergrund. *Psychotherapie, Psychosomatik, medizinische Psychologie*, 69(5), 176–181. <https://doi.org/10.1055/a-0583-1093>

- Brücker, H., Goßner, L., Hauptmann, A., Jaschke, P., Kassam, K., Kosyakova, Y., & Stepanok, I. (2022). *Die Folgen des Ukraine-Kriegs für Migration und Integration: Eine erste Einschätzung. IAB-Forschungsbericht: Vol. 2.* Nürnberg, Germany: Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit. <https://doi.org/10.48720/IAB.FB.2202>
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research, 6*(1), 97–113. <https://doi.org/10.1177/1468794106058877>
- Bueter, A. (2017). Androcentrism, feminism, and pluralism in medicine. *Topoi, 36*(3), 521–530. <https://doi.org/10.1007/s11245-015-9339-y>
- Buhr, E. de, & Tannen, A. (2020). Parental health literacy and health knowledge, behaviours and outcomes in children: A cross-sectional survey. *BMC Public Health, 20*(1), 1096. <https://doi.org/10.1186/s12889-020-08881-5>
- Bundesamt für Migration und Flüchtlinge (2017). BAMF – Bundesamt für Migration und Flüchtlinge: Glossar – Migrationshintergrund. Retrieved from https://www.bamf.de/DE/Service/Left/Glossary/_function/glossar.html?lv3=3198544
- Buu, A., Dabrowska, A., Heinze, J. E., Hsieh, H.-F., & Zimmerman, M. A. (2015). Gender differences in the developmental trajectories of multiple substance use and the effect of nicotine and marijuana use on heavy drinking in a high-risk sample. *Addictive Behaviors, 50*, 6–12. <https://doi.org/10.1016/j.addbeh.2015.06.015>
- Centre for Open Science (2021). Open Science Framework (OSF). Retrieved from <https://osf.io/>
- Chaiken, S., & Ledgerwood, A. (2011). A theory of heuristic and systematic information processing. In Lange, P.A., Kruglanski, Arie W. & E. T. Higgins (Eds.), *SAGE Social Psychology Program. Handbook of theories of social psychology: Collection: Volumes 1 & 2* (1st ed., 264-266). London, United Kingdom: SAGE Publications.
- Chakraverty, D. (2013). My name is Chakraverty. In U. Goel (Ed.), *InderKinder: Vol. 2. InderKinder.: Über das Aufwachsen und Leben in Deutschland. Ein virtueller Sammelband im Entstehen* (Vol. 2013). Berlin: Urmila Goel. Retrieved from http://www.urmila.de/inderkinder/online/IK_Digo.pdf

- Chakraverty, D., Baumeister, A., Aldin, A., Jakob, T., Monsef, I., Wooten, C., & Kalbe, E. (2018). Gender-specific aspects of health literacy in individuals with migration background. Retrieved from https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=85555
- Chen, X., Hay, J. L., Waters, E. A., Kiviniemi, M. T., Biddle, C., Schofield, E., . . . Orom, H. (2018). Health literacy and use and trust in health information. *Journal of Health Communication, 23*(8), 724–734. <https://doi.org/10.1080/10810730.2018.1511658>
- Chesney-Lind, M., & Hadi, S. T. (2017). Patriarchy, abortion, and the criminal system: Policing female bodies. *Women & Criminal Justice, 27*(1), 73–88. <https://doi.org/10.1080/08974454.2016.1259601>
- Chew, L. D., Bradley, K. A., & Boyko, E. J. (2004). Brief questions to identify patients with inadequate health literacy. *Family Medicine, 36*(8), 588–594.
- Clasen, S. (2019). Wer bestimmt über den weiblichen Körper? Worum es in der Auseinandersetzung um §219a StGB wirklich geht. *Femina Politica – Zeitschrift Für Feministische Politikwissenschaft, 28*(2), 146–149. <https://doi.org/10.3224/feminapolitica.v28i2.14>
- Clouston, S. A. P., Manganello, J. A., & Richards, M. (2017). A life course approach to health literacy: The role of gender, educational attainment and lifetime cognitive capability. *Age and Ageing, 46*(3), 493–499. <https://doi.org/10.1093/ageing/afw229>
- The Cochrane Collaboration (2020). *Review Manager (RevMan)[Computer Program].: Version 5.4.*
- Coşan, D. (2015). The perception of psychotherapy in Turkey. *The European Journal of Social and Behavioural Sciences, 8*(2), 220–230. <https://doi.org/10.15405/ejsbs.165>
- Criado-Perez, C. (2020). *Invisible women: Exposing data bias in a world designed for men.* London, United Kingdom: Vintage.
- Cudjoe, J., Delva, S., Cajita, M., & Han, H.-R. (2020). Empirically tested health literacy frameworks. *Health Literacy Research and Practice, 4*(1), e22-e44. <https://doi.org/10.3928/24748307-20191025-01>

- Czaika, M., & Di Lillo, A. (2018). The geography of anti-immigrant attitudes across Europe, 2002–2014. *Journal of Ethnic and Migration Studies*, 44(15), 2453–2479.
<https://doi.org/10.1080/1369183X.2018.1427564>
- Dahal, P. K., & Hosseinzadeh, H. (2019). Association of health literacy and diabetes self-management: A systematic review. *Australian Journal of Primary Health*, 25(6), 526–533.
<https://doi.org/10.1071/PY19007>
- Daly, A. (2021). The Declaration of interdependence! Feminism, grounding and enactivism. *Human Studies*, 1–20. <https://doi.org/10.1007/s10746-020-09570-3>
- D'Cruz, A. M., & Shankar Aradhya, M. R. (2013). Health literacy among Indian adults seeking dental care. *Dental Research Journal*, 10(1), 20–24. <https://doi.org/10.4103/1735-3327.111760>
- Deeks, J. J., Higgins, J. P. T., & Altman, D. G. (2022). Chapter 10: Analysing data and undertaking meta-analyses: In: Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). *Cochrane Handbook for Systematic Reviews of Interventions version 6.3*. Retrieved from www.training.cochrane.org/handbook
- Deepak, A. C. (2005). Parenting and the process of migration: Possibilities within South Asian families. *Child Welfare*, 84(5), 585–604.
- Downes, M. J., Brennan, M. L., Williams, H. C., & Dean, R. S. (2016). Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ Open*, 6(12), e011458.
<https://doi.org/10.1136/bmjopen-2016-011458>
- Dworkin, S. L. (1989). Not in man's image: Lesbians and the cultural oppression of body image. *Women & Therapy*, 8(1-2), 27–39. https://doi.org/10.1300/J015v08n01_03
- Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Eichler, K., Wieser, S., & Brügger, U. (2009). The costs of limited health literacy: A systematic review. *International Journal of Public Health*, 54(5), 313–324. <https://doi.org/10.1007/s00038-009-0058-2>

- Ek, S. (2015). Gender differences in health information behaviour: A Finnish population-based survey. *Health Promotion International*, 30(3), 736–745. <https://doi.org/10.1093/heapro/dat063>
- El-Mafaalani, A. (2012). *BildungsaufsteigerInnen aus benachteiligten Milieus: Habitustransformation und soziale Mobilität bei Einheimischen und Türkeistämmigen*. Wiesbaden, Germany: VS Verlag für Sozialwissenschaften. <https://doi.org/10.1007/978-3-531-19320-5>
- El-Mafaalani, A. (2017). Diskriminierung von Menschen mit Migrationshintergrund. In A. Scherr, A. El-Mafaalani, & G. Yüksel (Eds.), *Handbuch Diskriminierung* (pp. 465–478). Wiesbaden, Germany: Springer. https://doi.org/10.1007/978-3-658-10976-9_26
- Elrick, J., & Farah Schwartzman, L. (2015). From statistical category to social category: Organized politics and official categorizations of ‘persons with a migration background’ in Germany. *Ethnic and Racial Studies*, 38(9), 1539–1556.
- European Commission (2019). Person with a migratory background. Retrieved from https://ec.europa.eu/home-affairs/what-we-do/networks/european_migration_network/glossary_search/person-migratory-background_en
- Fauri, F., & Tedeschi, P. (2018). Introduction: The economic and social influence of migrants as job seekers and entrepreneurs in host countries. In F. Fauri & P. Tedeschi (Eds.), *Palgrave pivot: Vol. 1. Integration and entrepreneurship among migrant workers: A long-term view* (1st ed., pp. 1–10). Cham, Switzerland: Palgrave Macmillan. https://doi.org/10.1007/978-3-319-90587-7_1
- Fausto-Sterling, A. (2005). The problem with sex/gender and nature/nurture. In G. Bendelow, L. Birke, & S. Williams (Eds.), *Debating biology: Sociological reflections on health, medicine and society* (pp. 133–142). London, United Kingdom: Routledge. <https://doi.org/10.4324/9780203987681-12>
- Fekete, L. (2004). Anti-Muslim racism and the European security state. *Race & Class*, 46(1), 3–29. <https://doi.org/10.1177/0306396804045512>
- Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82(6), 878–902. <https://doi.org/10.1037/0022-3514.82.6.878>

- Forney, K. J., Keel, P. K., O'Connor, S., Sisk, C., Burt, S. A., & Klump, K. L. (2019). Interaction of hormonal and social environments in understanding body image concerns in adolescent girls. *Journal of Psychiatric Research, 109*, 178–184. <https://doi.org/10.1016/j.jpsychires.2018.12.008>
- Gausman Benson, J., & Forman, W. B. (2002). Comprehension of written health care information in an affluent geriatric retirement community: Use of the Test of Functional Health Literacy. *Gerontology, 48*(2), 93–97. <https://doi.org/10.1159/000048933>
- Gaye, A., Klugman, J., Kovacevic, M., Twigg, S., & Zambrano, E. (2010). *Measuring key disparities in human development: The gender inequality index* (Human Development Reports Research Paper No. 46).
- Geboers, B., Reijneveld, S. A., Jansen, C. J. M., & Winter, A. F. de (2016). Health literacy is associated with health behaviors and social factors among older adults: Results from the lifelines cohort study. *Journal of Health Communication, 21*(sup2), 45–53. <https://doi.org/10.1080/10810730.2016.1201174>
- Geçer, E., Yıldırım, M., & Akgül, Ö. (2022). Sources of information in times of health crisis: Evidence from Turkey during COVID-19. *Z. Gesundh. Wiss. (Zeitschrift Für Gesundheitswissenschaften. Journal of Public Health), 30*(5), 1113–1119. <https://doi.org/10.1007/s10389-020-01393-x>
- Geltman, P. L., Adams, J. H., Cochran, J., Doros, G., Rybin, D., Henshaw, M., . . . Paasche-Orlow, M. (2013). The impact of functional health literacy and acculturation on the oral health status of Somali refugees living in Massachusetts. *American Journal of Public Health, 103*(8), 1516–1523. <https://doi.org/10.2105/AJPH.2012.300885>
- Gemmati, D., Varani, K., Bramanti, B., Piva, R., Bonaccorsi, G., Trentini, A., . . . Bellini, T. (2019). "Bridging the gap" Everything that could have been avoided if we had applied gender medicine, pharmacogenetics and personalized medicine in the gender-omics and sex-omics era. *International Journal of Molecular Sciences, 21*(1), 296. <https://doi.org/10.3390/ijms21010296>
- Gerstendörfer, M., & Jütte, R. (1996). Der § 218 — Das Bundesverfassungsgericht und seine Geschlechterpolitik. In P. Imbusch & R. Zoll (Eds.), *Friedens- und Konfliktforschung: Eine*

- Einführung mit Quellen* (pp. 351–381). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-322-97349-8_9
- Ghisi, G. L. d. M., Da Chaves, G. S. S., Britto, R. R., & Oh, P. (2018). Health literacy and coronary artery disease: A systematic review. *Patient Education and Counseling, 101*(2), 177–184. <https://doi.org/10.1016/j.pec.2017.09.002>
- Göktürk, D., Gramling, D., & Kaes, A. (2007). *Germany in transit: Nation and migration, 1955 - 2005*. Berkeley: Univ. of California Press.
- Goldstein, M. C., Schuler, S., & Ross, J. L. (1983). Social and economic forces affecting intergenerational relations in extended families in a third world country: A cautionary tale from South Asia. *Journal of Gerontology, 38*(6), 716–724.
- González-Morales, M. G., Peiró, J. M., Rodríguez, I., & Greenglass, E. R. (2006). Coping and distress in organizations: The role of gender in work stress. *International Journal of Stress Management, 13*(2), 228–248. <https://doi.org/10.1037/1072-5245.13.2.228>
- Grissom, N. M., & Reyes, T. M. (2019). Let's call the whole thing off: Evaluating gender and sex differences in executive function. *Neuropsychopharmacology, 44*(1), 86–96. <https://doi.org/10.1038/s41386-018-0179-5>
- Grove, N. J., & Zwi, A. B. (2006). Our health and theirs: Forced migration, othering, and public health. *Social Science & Medicine, 62*(8), 1931–1942. <https://doi.org/10.1016/j.socscimed.2005.08.061>
- Guest, G., Namey, E., & McKenna, K. (2016). How many focus groups are enough? Building an evidence base for nonprobability sample sizes. *Field Methods, 29*(1), 3–22.
- Guntzviller, L. M., King, A. J., Jensen, J. D., & Davis, L. A. (2017). Self-efficacy, health literacy, and nutrition and exercise behaviors in a low-income, Hispanic population. *Journal of Immigrant and Minority Health, 19*(2), 489–493. <https://doi.org/10.1007/s10903-016-0384-4>
- Hadziabdic, E., Albin, B., & Hjelm, K. (2014). Arabic-speaking migrants' attitudes, opinions, preferences and past experiences concerning the use of interpreters in healthcare: A postal cross-sectional survey. *BMC Research Notes, 7*, 71. <https://doi.org/10.1186/1756-0500-7-71>

- Hankivsky, O. (2012). Women's health, men's health, and gender and health: Implications of intersectionality. *Social Science & Medicine*, 74(11), 1712–1720.
<https://doi.org/10.1016/j.socscimed.2011.11.029>
- Harden, A., Thomas, J., Cargo, M., Harris, J., Pantoja, T., Flemming, K., . . . Noyes, J. (2018). Cochrane Qualitative and Implementation Methods Group guidance series – paper 5: Methods for integrating qualitative and implementation evidence within intervention effectiveness reviews. *Journal of Clinical Epidemiology*, 97, 70–78.
<https://doi.org/10.1016/j.jclinepi.2017.11.029>
- Harnett, S. (2017). Health literacy tool shed: A source for validated health literacy instruments. *Journal of Consumer Health on the Internet*, 21(1), 78–86.
<https://doi.org/10.1080/15398285.2017.1280344>
- Harris, L. H. (2022). Navigating Loss of Abortion Services - A Large Academic Medical Center Prepares for the Overturn of Roe v. Wade. *The New England Journal of Medicine*, 386(22), 2061–2064. <https://doi.org/10.1056/NEJMp2206246>
- Haug, S. (2008). *Sprachliche Integration von Migranten in Deutschland* (Working Paper). Nürnberg, Germany: Bundesamt für Migration und Flüchtlinge; Forschungszentrum Migration, Integration und Asyl; Bundesamt für Migration und Flüchtlinge; Forschungszentrum Migration, Integration und Asyl, 14.
- Hearn, J. (2019). So what has been, is, and might be going on in studying men and masculinities? Some continuities and discontinuities. *Men and Masculinities*, 22(1), 53–63.
<https://doi.org/10.1177/1097184X18805550>
- Hedges, L. V. (1983). A random effects model for effect sizes. *Psychological Bulletin*, 93(2), 388–395.
<https://doi.org/10.1037/0033-2909.93.2.388>
- Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (Eds.) (2022). *Cochrane handbook for systematic reviews of interventions* (6.3th ed.). Cochrane. Retrieved from www.training.cochrane.org/handbook
- Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine*, 21(11), 1539–1558. <https://doi.org/10.1002/sim.1186>

- Hiller, J., Schatz, K., & Drexler, H. (2017). Gender influence on health and risk behavior in primary prevention: A systematic review. *Zeitschrift Fur Gesundheitswissenschaften / Journal of Public Health*, 25(4), 339–349. <https://doi.org/10.1007/s10389-017-0798-z>
- Holmes, J. (1991). Language and gender. *Language Teaching*, 24(4), 207–220. <https://doi.org/10.1017/S0261444800006455>
- Holter, Ø. G. (2014). "What's in it for Men?". *Men and Masculinities*, 17(5), 515–548. <https://doi.org/10.1177/1097184X14558237>
- Hopkins, P. E. (2006). Youthful Muslim masculinities: Gender and generational relations. *Transactions of the Institute of British Geographers*, 31(3), 337–352. <https://doi.org/10.1111/j.1475-5661.2006.00206.x>
- Howard, D. H., Gazmararian, J., & Parker, R. M. (2005). The impact of low health literacy on the medical costs of Medicare managed care enrollees. *The American Journal of Medical Electronics*, 118(4), 371–377. <https://doi.org/10.1016/j.amjmed.2005.01.010>
- Hyde, J. S. (2014). Gender similarities and differences. *Annual Review of Psychology*, 65, 373–398. <https://doi.org/10.1146/annurev-psych-010213-115057>
- International Organization for Migration (2018). Key Migration Terms. Retrieved from <https://www.iom.int/key-migration-terms#Migrant>
- International Organization for Migration (2019). *World migration report 2020*. Geneva, Switzerland. Retrieved from https://publications.iom.int/system/files/pdf/wmr_2020.pdf
- Jackson, L. A., Ervin, K. S., Gardner, P. D., & Schmitt, N. (2001). Gender and the internet: Women communicating and men searching. *Sex Roles*, 44(5), 363–379. <https://doi.org/10.1023/A:1010937901821>
- Jacobs, E. A., Shepard, D. S., Suaya, J. A., & Stone, E.-L. (2004). Overcoming language barriers in health care: Costs and benefits of interpreter services. *American Journal of Public Health*, 94(5), 866–869. <https://doi.org/10.2105/ajph.94.5.866>
- Jagosh, J., Macaulay, A. C., Pluye, P., Salsberg, J., Bush, P. L., Henderson, J., . . . Greenhalgh, T. (2012). Uncovering the benefits of participatory research: Implications of a realist review for

- health research and practice. *The Milbank Quarterly*, 90(2), 311–346.
<https://doi.org/10.1111/j.1468-0009.2012.00665.x>
- Jaljaa, A., Caminada, S., Tosti, M. E., D'Angelo, F., Angelozzi, A., Isonne, C., . . . Marceca, M. (2022). Risk of SARS-CoV-2 infection in migrants and ethnic minorities compared with the general population in the European WHO region during the first year of the pandemic: A systematic review. *BMC Public Health*, 22(1), 143. <https://doi.org/10.1186/s12889-021-12466-1>
- Jensen, E. A., Pflieger, A., Herbig, L., Wagoner, B., Lorenz, L., & Watzlawik, M. (2021). What drives belief in vaccination conspiracy theories in Germany? *Frontiers in Communication*, 6.
<https://doi.org/10.3389/fcomm.2021.678335>
- Johnson, B. T., Scott-Sheldon, L. A. J., & Carey, M. P. (2010). Meta-synthesis of health behavior change meta-analyses. *American Journal of Public Health*, 100(11), 2193–2198.
<https://doi.org/10.2105/AJPH.2008.155200>
- Johnson, J. L., Oliffe, J. L., Kelly, M. T., Galdas, P., & Ogradniczuk, J. S. (2012). Men's discourses of help-seeking in the context of depression. *Sociology of Health & Illness*, 34(3), 345–361.
<https://doi.org/10.1111/j.1467-9566.2011.01372.x>
- Kaczan, D. J., & Orgill-Meyer, J. (2020). The impact of climate change on migration: A synthesis of recent empirical insights. *Climatic Change*, 158(3-4), 281–300. <https://doi.org/10.1007/s10584-019-02560-0>
- Karakayali, S. (2018). The Flüchtlingskrise in Germany: Crisis of the refugees, by the refugees, for the refugees. *Sociology*, 52(3), 606–611. <https://doi.org/10.1177/0038038518760224>
- Kawar, L. N. (2013). Barriers to breast cancer screening participation among Jordanian and Palestinian American women. *European Journal of Oncology Nursing*, 17(1), 88–94.
<https://doi.org/10.1016/j.ejon.2012.02.004>
- Kayser, L., Hansen-Nord, N. S., Osborne, R. H., Tjønneland, A., & Hansen, R. D. (2015). Responses and relationship dynamics of men and their spouses during active surveillance for prostate cancer: Health literacy as an inquiry framework. *BMC Public Health*, 15, 741.
<https://doi.org/10.1186/s12889-015-2068-8>

- Kickbusch, I. S. (2001). Health literacy: Addressing the health and education divide. *Health Promotion International*, 16(3), 289–297. <https://doi.org/10.1093/heapro/16.3.289>
- Kizilhan, J. I. (2012). Changes in disease perception, coping strategies and diagnoses in the case of first and fourth generations of Turkish migrants in Germany. *Europe's Journal of Psychology*, 8(3), 352–362. <https://doi.org/10.23668/PSYCHARCHIVES.1339>
- Koenig, L. L. (2000). Laryngeal factors in voiceless consonant production in men, women, and 5-year-olds. *Journal of Speech, Language, and Hearing Research*, 43(5), 1211–1228. <https://doi.org/10.1044/jslhr.4305.1211>
- Kommunale Gesundheitskonferenz Köln, Arbeitsgruppe Migration und Gesundheit (2013). Kölner Gesundheitswegweiser für Migrantinnen und Migranten. Retrieved from https://www.stadt-koeln.de/mediaasset/content/pdf53/gesundheitswegweiser_migranten.pdf
- Kuchynka, S. L., Bosson, J. K., Vandello, J. A., & Puryear, C. (2018). Zero-sum thinking and the masculinity contest: Perceived intergroup competition and workplace gender bias. *The Journal of Social Issues*, 74(3), 529–550. <https://doi.org/10.1111/josi.12281>
- Kuckartz, U. (2019). Qualitative Inhaltsanalyse: Von Kracauers Anfängen zu heutigen Herausforderungen. *Forum Qualitative Sozialforschung*, 20(3). <https://doi.org/10.17169/fqs-20.3.3370>
- Kutner, M., Greenberg, E., Jin, Y., & Paulsen, C. (2006). *The health literacy of America's adults: Results from the 2003 national assessment of adult literacy*. Washington, D.C.
- Lee, H. Y., Lee, J. [Jiwoo], & Kim, N. K. (2014). Gender differences in health literacy among Korean adults: Do women have a higher level of health literacy than men? *American Journal of Men's Health*, 9(5), 370–379. <https://doi.org/10.1177/1557988314545485>
- Loof, A. de (2018). Only two sex forms but multiple gender variants: How to explain? *Communicative & Integrative Biology*, 11(1), e1427399. <https://doi.org/10.1080/19420889.2018.1427399>
- Lundström, M. (2022). Synchronization of the Corona crisis. *Time & Society*, 0961463X2110576. <https://doi.org/10.1177/0961463X211057622>

- Mackenzie, C. (2019). Feminist innovation in philosophy: Relational autonomy and social justice. *Women's Studies International Forum*, 72, 144–151. <https://doi.org/10.1016/j.wsif.2018.05.003>
- Mackert, M., Champlin, S., Su, Z., & Guadagno, M. (2015). The many health literacies: Advancing research or fragmentation? *Health Communication*, 30(12), 1161–1165. <https://doi.org/10.1080/10410236.2015.1037422>
- Marchese, V., Formenti, B., Cocco, N., Russo, G., Testa, J., Castelli, F., & Mazzetti, M. (2022). Examining the pre-war health burden of Ukraine for prioritisation by European countries receiving Ukrainian refugees. *The Lancet Regional Health Europe*, 15, 100369. <https://doi.org/10.1016/j.lanep.2022.100369>
- Marcos-Marcos, J., Gasch-Gallén, A., Mateos, J. T., & Álvarez-Dardet, C. (2021). Advancing gender equ(al)ity, lifting men's health: Dealing with the spirit of our time. *Journal of Epidemiology and Community Health*, 75(1), 100–104. <https://doi.org/10.1136/jech-2019-213165>
- Martin, R., Martinelli, F., & Clifton, J. (2022). Rethinking spatial policy in an era of multiple crises. *Cambridge Journal of Regions, Economy and Society*, 15(1), 3–21. <https://doi.org/10.1093/cjres/rsab037>
- Mawhinney, M., & Mariotti, A. (2013). Physiology, pathology and pharmacology of the male reproductive system. *Periodontology 2000*, 61(1), 232–251. <https://doi.org/10.1111/j.1600-0757.2011.00408.x>
- McCaffery, K. J., Dodd, R. H., Cvejic, E., Ayrek, J., Batcup, C., Isautier, J. M., . . . Wolf, M. S. (2020). Health literacy and disparities in COVID-19-related knowledge, attitudes, beliefs and behaviours in Australia. *Public Health Research & Practice*, 30(4). <https://doi.org/10.17061/phrp30342012>
- McCarthy, M. M., & Arnold, A. P. (2011). Reframing sexual differentiation of the brain. *Nature Neuroscience*, 14(6), 677–683. <https://doi.org/10.1038/nn.2834>
- McDonald, M., & Shenkman, L. (2018). Health literacy and health outcomes of adults in the united states: Implications for providers. *The Internet Journal of Allied Health Sciences and Practice*. Advance online publication. <https://doi.org/10.46743/1540-580X/2018.1689>

- McLeman, R. (2018). Thresholds in climate migration. *Population and Environment*, 39(4), 319–338.
<https://doi.org/10.1007/s11111-017-0290-2>
- Merchant, R. C., Marks, S. J., Clark, M. A., Carey, M. P., & Liu, T. (2020). Limited ability of three health literacy screening items to identify adult English- and Spanish-speaking emergency department patients with lower health literacy. *Annals of Emergency Medicine*, 75(6), 691–703.
<https://doi.org/10.1016/j.annemergmed.2020.01.019>
- Merone, L., Tsey, K., Russell, D., & Nagle, C. (2021). Sex and gender gaps in medicine and the androcentric history of medical research. *Australian and New Zealand Journal of Public Health*. Advance online publication. <https://doi.org/10.1111/1753-6405.13139>
- Merten, S., Martin Hilber, A., Biaggi, C., Secula, F., Bosch-Capblanch, X., Namgyal, P., & Hombach, J. (2015). Gender determinants of vaccination status in children: Evidence from a meta-ethnographic systematic review. *PLoS ONE*, 10(8), e0135222.
<https://doi.org/10.1371/journal.pone.0135222>
- Mills, M. (2010). Gender roles, gender (in)equality and fertility: An empirical test of five gender equity indices. *Canadian Studies in Population*, 37(3-4), 445. <https://doi.org/10.25336/P6131Q>
- Moffitt, U., Juang, L. P., & Syed, M. (2018). Being both German and other: Narratives of contested national identity among white and Turkish German young adults. *The British Journal of Social Psychology*, 57(4), 878–896. <https://doi.org/10.1111/bjso.12268>
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., . . . Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, 4, 1. <https://doi.org/10.1186/2046-4053-4-1>
- Moore, P. M., Rivera, S., Bravo-Soto, G. A., Olivares, C., & Lawrie, T. A. (2018). Communication skills training for healthcare professionals working with people who have cancer. *The Cochrane Database of Systematic Reviews*, 7, CD003751.
<https://doi.org/10.1002/14651858.CD003751.pub4>
- Murray, T. S., Hagey, J., Willms, D., Shillington, R., & Desjardins, R. *Health literacy in Canada: A healthy understanding*. Ottawa, Canada: Canadian Council on Learning.

- Nachtschatt, U., Steinboeck, S., & Hochleitner, M. (2018). The integration of gender medicine in medical education at Austrian universities – the status quo. *MedEdPublish*, 7(1).
<https://doi.org/10.15694/mep.2018.0000013.1>
- Naveed, M. A., & Shaukat, R. (2021). Health literacy predicts Covid-19 awareness and protective behaviours of university students. *Health Information and Libraries Journal*. Advance online publication. <https://doi.org/10.1111/hir.12404>
- Ng, E., & Omariba, D. W. R. (2011). *Health literacy and immigrants in Canada: Determinants and effects on health outcomes*. Canadian Council on Learning. Retrieved from http://en.copian.ca/library/research/ccl/health_lit_immigrants_canada/health_lit_immigrants_canada.pdf
- Nguyen, H. T., Do, B. N., Pham, K. M., Kim, G. B., Dam, H. T. B., Nguyen, T. T., . . . van Duong, T. (2020). Fear of Covid-19 scale-associations of its scores with health literacy and health-related behaviors among medical students. *International Journal of Environmental Research and Public Health*, 17(11), 4164. <https://doi.org/10.3390/ijerph17114164>
- Nutbeam, D. [D.] (2000). Health literacy as a public health goal: A challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*, 15(3), 259–267. <https://doi.org/10.1093/heapro/15.3.259>
- Okan, O. (2019). From Saranac Lake to Shanghai: A brief history of health literacy. In O. Okan, U. Bauer, D. Levin-Zamir, P. Pinheiro, & K. Sørensen (Eds.), *International handbook of health literacy: Research, practice and policy across the lifespan* (pp. 21–38). Bristol, United Kingdom: Policy Press.
- Oliffe, J. L., Hannan-Leith, M. N., Ogradniczuk, J. S., Black, N., Mackenzie, C. S., Lohan, M., & Creighton, G. (2016). Men's depression and suicide literacy: A nationally representative Canadian survey. *Journal of Mental Health*, 25(6), 520–526.
<https://doi.org/10.1080/09638237.2016.1177770>
- Oliffe, J. L., Rossnagel, E., Kelly, M. T., Bottorff, J. L., Seaton, C., & Darroch, F. (2020). Men's health literacy: A review and recommendations. *Health Promotion International*, 35(5), 1037–1051.
<https://doi.org/10.1093/heapro/daz077>

- Paakkari, L., & Okan, O. (2020). COVID-19: Health literacy is an underestimated problem. *The Lancet. Public Health*, 5(5), e249-e250. [https://doi.org/10.1016/S2468-2667\(20\)30086-4](https://doi.org/10.1016/S2468-2667(20)30086-4)
- Paasche-Orlow, M. K., Parker, R. M., Gazmararian, J. A., Nielsen-Bohlman, L. T., & Rudd, R. R. (2005). The prevalence of limited health literacy. *Journal of General Internal Medicine*, 20(2), 175–184. <https://doi.org/10.1111/j.1525-1497.2005.40245.x>
- Padela, A. I., Gunter, K., Killawi, A., & Heisler, M. (2012). Religious values and healthcare accommodations: Voices from the American Muslim community. *Journal of General Internal Medicine*, 27(6), 708–715. <https://doi.org/10.1007/s11606-011-1965-5>
- Palumbo, R. (2017). Examining the impacts of health literacy on healthcare costs. An evidence synthesis. *Health Services Management Research*, 30(4), 197–212. <https://doi.org/10.1177/0951484817733366>
- Park, J., An, J., Stodolska, M., & Santos, C. A. (2021). Transnational leisure, ethnic identity conflict and life satisfaction among fourth-generation young adult Korean ethnic minority in China. *Journal of Leisure Research*, 52(4), 446–468. <https://doi.org/10.1080/00222216.2021.1880874>
- Park, L. S.-H. (2016). Continuing significance of the model minority myth: The second generation. In M. Zhou & A. C. Ocampo (Eds.), *Contemporary Asian America: A Multidisciplinary Reader* (3rd ed., pp. 497–507). New York University Press. <https://doi.org/10.18574/9781479849994-027>
- Parker, R., & Ratzan, S. C. [Scott C.] (2010). Health literacy: A second decade of distinction for Americans. *Journal of Health Communication*, 15 Suppl 2, 20–33. <https://doi.org/10.1080/10810730.2010.501094>
- Pattyn, E., Verhaeghe, M., & Bracke, P. (2015). The gender gap in mental health service use. *Social Psychiatry and Psychiatric Epidemiology*, 50(7), 1089–1095. <https://doi.org/10.1007/s00127-015-1038-x>
- Pavela Banai, I., Banai, B., & Mikloušić, I. (2021). Beliefs in COVID-19 conspiracy theories, compliance with the preventive measures, and trust in government medical officials. *Current Psychology*, 1–11. <https://doi.org/10.1007/s12144-021-01898-y>

- Pelikan, J. [J.] (2012). *HLS-EU-Q: Measurement of health literacy in Europe: HLS-EU-Q47; HLS-EU-Q16; and HLS-EU-Q86*.
- Pelters, P., Lindgren, E.-C., Kostenius, C., Lydell, M., & Hertting, K. (2021). Health-related integration interventions for migrants by civil society organizations: An integrative review. *International Journal of Qualitative Studies on Health and Well-Being*, 16(1), 1927488. <https://doi.org/10.1080/17482631.2021.1927488>
- Perales, F., Lee, R., Forrest, W., Todd, A., & Baxter, J. (2021). Employment prospects of humanitarian migrants in Australia: Does gender inequality in the origin country matter? *Journal of Immigrant & Refugee Studies*, 1–15. <https://doi.org/10.1080/15562948.2021.1984622>
- Pilnick, A., & Dingwall, R. (2011). On the remarkable persistence of asymmetry in doctor/patient interaction: A critical review. *Social Science & Medicine*, 72(8), 1374–1382. <https://doi.org/10.1016/j.socscimed.2011.02.033>
- Pitt, R., Davis, T., Manganello, J., Massey, P., Okan, O., McFarlane, E., . . . Sentell, T. (2019). Health literacy in a social context: A meta-narrative review. In O. Okan, U. Bauer, D. Levin-Zamir, P. Pinheiro, & K. Sørensen (Eds.), *International handbook of health literacy: Research, practice and policy across the lifespan* (pp. 665–681). Bristol, United Kingdom: Policy Press.
- Pleasant, A., Maish, C., O'Leary, C., & Carmona, R. (2019). Measuring health literacy in adults: An overview and discussion of current tools. In O. Okan, U. Bauer, D. Levin-Zamir, P. Pinheiro, & K. Sørensen (Eds.), *International handbook of health literacy: Research, practice and policy across the lifespan* (pp. 67–82). Bristol, United Kingdom: Policy Press.
- Pleasant, A., Rudd, R. E., O'Leary, C., Paasche-Orlow, M. K., Allen, M. P., Alvarado-Little, W., . . . Rosen, S. (2016). Considerations for a new definition of health literacy. *NAM Perspectives*, 6(4). <https://doi.org/10.31478/201604a>
- Pountain, C., Kattan-Ibarra, J., Pountain, C. J., & Kattán-Ibarra, J. (2004). *Modern Spanish grammar*. London, United Kingdom: Routledge. <https://doi.org/10.4324/9780203428313>
- Qi, S., Hua, F., Xu, S., Zhou, Z., & Liu, F. (2021). Trends of global health literacy research (1995-2020): Analysis of mapping knowledge domains based on citation data mining. *PLoS ONE*, 16(8), e0254988. <https://doi.org/10.1371/journal.pone.0254988>

- Quenzel, G., & Schaeffer, D. (2016). *Health Literacy – Gesundheitskompetenz vulnerabler Bevölkerungsgruppen: Ergebnisbericht*. Bielefeld. Retrieved from https://www.uni-bielefeld.de/fakultaeten/gesundheitswissenschaften/ag/ag6/publikationen/QuenzelSchaeffer_GesundheitskompetenzVulnerablerGruppen_Ergebnisbericht_2016.pdf
- Ramírez, C., & Durón, R. M. (2022). The Russia-Ukraine war could bring catastrophic public-health challenges beyond COVID-19. *International Journal of Infectious Diseases*, *120*, 44–45. <https://doi.org/10.1016/j.ijid.2022.04.016>
- Ratzan, S. C. [S. C.] (2001). Health literacy: Communication for the public good. *Health Promotion International*, *16*(2), 207–214. <https://doi.org/10.1093/heapro/16.2.207>
- Ricciardelli, L. A., & Williams, R. J. (2011). Role of masculinity and femininity in the development and maintenance of health risk behaviors. In C. Blazina & D. S. Shen-Miller (Eds.), *An international psychology of men: Theoretical advances, case studies, and clinical innovations* (pp. 57–98). Routledge.
- Rothman, B. K. (1987). *The tentative pregnancy: Prenatal diagnosis and the future of motherhood*. New York, NY: Penguin.
- Rowley, J., Johnson, F., & Sbaffi, L. (2017). Gender as an influencer of online health information-seeking and evaluation behavior. *Journal of the Association for Information Science and Technology*, *68*(1), 36–47. <https://doi.org/10.1002/asi.23597>
- Rudman, L. A., & Glick, P. (2008). *The social psychology of gender: How power and intimacy shape gender relations. Texts in social psychology*. New York: Guilford Press.
- Ruthig, J. C., Kehn, A., Gamblin, B. W., Vanderzanden, K., & Jones, K. (2017). When women's gains equal men's losses: Predicting a zero-sum perspective of gender status. *Sex Roles*, *76*(1-2), 17–26. <https://doi.org/10.1007/s11199-016-0651-9>
- Ruysen, I., & Salomone, S. (2018). Female migration: A way out of discrimination? *Journal of Development Economics*, *130*, 224–241. <https://doi.org/10.1016/j.jdeveco.2017.10.010>
- Sanchis-Segura, C., & Becker, J. B. (2016). Why we should consider sex (and study sex differences) in addiction research. *Addiction Biology*, *21*(5), 995–1006. <https://doi.org/10.1111/adb.12382>

- Sandelowski, M. J. (2008). Justifying qualitative research. *Research in Nursing & Health, 31*(3), 193–195. <https://doi.org/10.1002/nur.20272>
- Sander, N., Abel, G., & Riosmena, A. (2013). *The future of international migration: Developing expert-based assumptions for global population projections* (Vienna Institute of Demography Working Papers No. 7). Wien.
- Santalahti, M., Sumit, K., & Perkiö, M. (2020). Barriers to accessing health care services: A qualitative study of migrant construction workers in a southwestern Indian city. *BMC Health Services Research, 20*(1), 619. <https://doi.org/10.1186/s12913-020-05482-1>
- Sauer, M. (2010). Mediennutzungsmotive türkeistämmiger Migranten in Deutschland. *Publizistik, 55*(1), 55–76. <https://doi.org/10.1007/s11616-010-0074-5>
- Schaeffer, D., Gille, S., Vogt, D., & Hurrelmann, K. (2021). National action plan health literacy in Germany origin, development and structure. *Zeitschrift Fur Gesundheitswissenschaften / Journal of Public Health*. Advance online publication. <https://doi.org/10.1007/s10389-021-01616-9>
- Scherer, M., Hierdeis, H., & Berghold, J. (2020). *Medizinische Versorgung zwischen Fortschritt und Zeitdruck: Auswirkungen gesellschaftlicher Beschleunigungsprozesse auf das Gesundheitswesen*. Göttingen, Germany: Vandenhoeck & Ruprecht. <https://doi.org/10.13109/9783666403965>
- Schlittler, R. (2015). Guidelines for psychological practice with transgender and gender nonconforming people. *The American Psychologist, 70*(9), 832–864. <https://doi.org/10.1037/a0039906>
- Sentell, T., Vamos, S., & Okan, O. (2020). Interdisciplinary perspectives on health literacy research around the world: More important than ever in a time of Covid-19. *International Journal of Environmental Research and Public Health, 17*(9), 3010. <https://doi.org/10.3390/ijerph17093010>
- Shai, A., Koffler, S., & Hashiloni-Dolev, Y. (2021). Feminism, gender medicine and beyond: A feminist analysis of "gender medicine". *International Journal for Equity in Health, 20*(1), 177. <https://doi.org/10.1186/s12939-021-01511-5>
- Shaw, S. M., & Lee, J. [Janet] (Eds.) (2019). *Gendered voices, feminist visions: Classic and contemporary readings* (7th ed.). New York: Oxford University Press.

- Simonds, S. K. (1974). Health education as social policy. *Health Education Monographs*, 2(1_suppl), 1–10. <https://doi.org/10.1177/10901981740020S102>
- Son, Y.-J., & Won, M. H. (2020). Gender differences in the impact of health literacy on hospital readmission among older heart failure patients: A prospective cohort study. *Journal of Advanced Nursing*, 76(6), 1345–1354. <https://doi.org/10.1111/jan.14328>
- Sørensen, K. [Kristine] (2019). Defining health literacy: Exploring differences and commonalities. In O. Okan, U. Bauer, D. Levin-Zamir, P. Pinheiro, & K. Sørensen (Eds.), *International handbook of health literacy: Research, practice and policy across the lifespan*. Bristol, United Kingdom: Policy Press.
- Sørensen, K. [Kristine], Pelikan, J. M., Röthlin, F., Ganahl, K., Slonska, Z., Doyle, G., . . . Brand, H. (2015). Health literacy in Europe: Comparative results of the European health literacy survey (HLS-EU). *European Journal of Public Health*, 25(6), 1053–1058.
- Sørensen, K. [Kristine], van den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*, 12(1), 80. <https://doi.org/10.1186/1471-2458-12-80>
- Sørensen, K. [Kristine], van den Broucke, S., Pelikan, J. M., Fullam, J., Doyle, G., Slonska, Z., . . . Brand, H. (2013). Measuring health literacy in populations: Illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC Public Health*, 13, 948. <https://doi.org/10.1186/1471-2458-13-948>
- Spaich, S., Weiss, C., & Sütterlin, M. (2019). Altered patient perceptions and preferences regarding male and female gynecologists: A comparison between 1997 and 2018. *Archives of Gynecology and Obstetrics*, 300(5), 1331–1341. <https://doi.org/10.1007/s00404-019-05315-5>
- Srinivas, M. N. (1957). Caste in modern India. *The Journal of Asian Studies*, 16(4), 529–548.
- Srinivasan, D., Sinden, K. E., Mathiassen, S. E., & Côté, J. N. (2016). Gender differences in fatigability and muscle activity responses to a short-cycle repetitive task. *European Journal of Applied Physiology*, 116(11-12), 2357–2365. <https://doi.org/10.1007/s00421-016-3487-7>

- Statistisches Bundesamt Deutschland (2021). GENESIS-Online: Ergebnis 12521-0002. Retrieved from <https://www-genesis.destatis.de/genesis/online?operation=abruftabelleBearbeiten&levelindex=2&levelid=1630410295785&auswahloperation=abruftabelleAuspraegungAuswaehlen&auswahlverzeichnis=ordnungsstruktur&auswahlziel=werteabruf&code=12521-0002&auswahltext=&nummer=6&variable=6&name=GES&nummer=5&variable=5&name=STAAG6&werteabruf=Werteabruf#abreadcrumb>
- Steinhardt, M. F. (2016). The dimensions and effects of EU labour migration in Germany. In B. Galgóczi & J. Leschke (Eds.), *EU Labour Migration since Enlargement* (pp. 117–142). London, United Kingdom: Routledge.
- Stepanikova, I. (2012). Racial-ethnic biases, time pressure, and medical decisions. *Journal of Health and Social Behavior, 53*(3), 329–343. <https://doi.org/10.1177/0022146512445807>
- Stormacq, C., van den Broucke, S., & Wosinski, J. (2019). Does health literacy mediate the relationship between socioeconomic status and health disparities? Integrative review. *Health Promotion International, 34*(5), e1-e17. <https://doi.org/10.1093/heapro/day062>
- Sultana, A. (2012). Patriarchy and women's subordination: A theoretical analysis. *Arts Faculty Journal, 4*, 1–18. <https://doi.org/10.3329/afj.v4i0.12929>
- Suphanchaimat, R., Kantamaturapoj, K., Putthasri, W., & Prakongsai, P. (2015). Challenges in the provision of healthcare services for migrants: A systematic review through providers' lens. *BMC Health Services Research, 15*, 390. <https://doi.org/10.1186/s12913-015-1065-z>
- Terkessidis, M. (2015). *Die Banalität des Rassismus: Migranten zweiter Generation entwickeln eine neue Perspektive*. Bielefeld, Germany: transcript Verlag.
- Timmis, K., & Verstraete, W. (2022). Multiple intertwined crises facing humanity necessitate a European environmental research organization. *Microbial Biotechnology, 15*(4), 1031–1034. <https://doi.org/10.1111/1751-7915.14054>
- Toçi, E., Burazeri, G., Sørensen, K. [K.], Jerliu, N., Ramadani, N., Roshi, E., & Brand, H. (2013). Health literacy and socioeconomic characteristics among older people in transitional Kosovo.

British Journal of Medicine and Medical Research, 3(4), 1646–1658.

<https://doi.org/10.9734/BJMMR/2013/3972>

Trezona, A., Rowlands, G., & Nutbeam, D. [Don] (2018). Progress in implementing national policies and strategies for health literacy-what have we learned so far? *International Journal of Environmental Research and Public Health*, 15(7), 1554. <https://doi.org/10.3390/ijerph15071554>

Tsuda, T. G. (2015). Recovering heritage and homeland: Ethnic revival among fourth-generation Japanese Americans. *Sociological Inquiry*, 85(4), 600–627. <https://doi.org/10.1111/soin.12095>

Tulsky, J. A., Beach, M. C., Butow, P. N., Hickman, S. E., Mack, J. W., Morrison, R. S., . . . Pollak, K. I. (2017). A research agenda for communication between health care professionals and patients living with serious illness. *JAMA Internal Medicine*, 177(9), 1361–1366.

<https://doi.org/10.1001/jamainternmed.2017.2005>

U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion (2010). Healthy people 2020 — disparities. Retrieved from:

<http://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities>

Ullah, I., Khan, K. S., Tahir, M. J., Ahmed, A., & Harapan, H. (2021). Myths and conspiracy theories on vaccines and COVID-19: Potential effect on global vaccine refusals. *Vacunas*, 22(2), 93–97.

<https://doi.org/10.1016/j.vacun.2021.01.001>

United Nations Development Programme (2020). *Human development report 2020: The next frontier—human development and the anthropocene*. New York, New York. Retrieved from

United Nations Development Programme website: <http://hdr.undp.org/en/2020-report>

United Nations Economic And Social Council (2009). *Ministerial declaration – 2009 High-level segment: Implementing the internationally agreed goals and commitments in regard to global public health*. Retrieved from United Nations website:

https://www.un.org/en/ecosoc/julyhls/pdf09/ministerial_declaration-2009.pdf

United Nations General Assembly (1948). *Universal declaration of human rights*. New York, NY: UN General Assembly. Retrieved from <https://www.un.org/sites/un2.un.org/files/udhr.pdf>

- Vamos, S., Okan, O., Sentell, T., & Rootman, I. (2020). Making a case for "Education for health Literacy": An international perspective. *International Journal of Environmental Research and Public Health*, 17(4), 1436. <https://doi.org/10.3390/ijerph17041436>
- Van Anders, S. M., & Watson, N. V. (2006). Social neuroendocrinology. *Human Nature*, 17(2), 212–237.
- Van den Muijsenbergh, M. E. T. C., LeMaster, J. W., Shahiri, P., Brouwer, M., Hussain, M., Dowrick, C., . . . MacFarlane, A. (2020). Participatory implementation research in the field of migrant health: Sustainable changes and ripple effects over time. *Health Expectations*, 23(2), 306–317. <https://doi.org/10.1111/hex.13034>
- Vila-Candel, R., Martínez-Arnau, F. M., La Cámara-de Las Heras, J. M. de, Castro-Sánchez, E., & Pérez-Ros, P. (2020). Interventions to improve health among reproductive-age women of low health literacy: A systematic review. *International Journal of Environmental Research and Public Health*, 17(20). <https://doi.org/10.3390/ijerph17207405>
- Villadsen, S. F., Hadi, H., Ismail, I., Osborne, R. H., Ekstrøm, C. T., & Kayser, L. (2020). Ehealth literacy and health literacy among immigrants and their descendants compared with women of Danish origin: A cross-sectional study using a multidimensional approach among pregnant women. *BMJ Open*, 10(5), e037076. <https://doi.org/10.1136/bmjopen-2020-037076>
- Wångdahl, J., Lytsy, P., Martensson, L., & Westerling, R. (2014). Health literacy among refugees in Sweden - a cross-sectional study. *BMC Public Health*, 14, 1030. <https://doi.org/10.1186/1471-2458-14-1030>
- Ward, M., Kristiansen, M., & Sørensen, K. [Kristine] (2019). Migrant health literacy in the European Union: A systematic literature review. *Health Education Journal*, 78(1), 81–95. <https://doi.org/10.1177/0017896918792700>
- Webster, F. (2000). The Politics of sex and gender: Benhabib and Butler debate subjectivity. *Hypatia*, 15(1), 1–22. <https://doi.org/10.1111/j.1527-2001.2000.tb01077.x>
- Weishaar, H., Hurrelmann, K., Okan, O., Horn, A., & Schaeffer, D. (2019). Framing health literacy: A comparative analysis of national action plans. *Health Policy*, 123(1), 11–20. <https://doi.org/10.1016/j.healthpol.2018.11.012>

- Widiasih, R., & Nelson, K. (2018). Muslim husbands' roles in women's health and cancer: The perspectives of muslim women in Indonesia. *Asian Pacific Journal of Cancer Prevention*, 19(6), 1703–1709. <https://doi.org/10.22034/APJCP.2018.19.6.1703>
- Will, A.-K. (2019). The German statistical category "migration background": Historical roots, revisions and shortcomings. *Ethnicities*, 19(3), 535–557. <https://doi.org/10.1177/1468796819833437>
- Will, A.-K., & Nowicka, M. (2021). *Der „Migrationshintergrund“ und seine Fallstricke: Wie weiter in der interkulturellen Öffnung des öffentlichen Dienstes in Deutschland?* (WISO Direkt No. 18). Bonn. Retrieved from Friedrich-Ebert-Stiftung website: <http://library.fes.de/pdf-files/wiso/17900.pdf>
- Wilson, R. S., Yu, L., James, B. D., Bennett, D. A., & Boyle, P. A. (2017). Association of financial and health literacy with cognitive health in old age. *Neuropsychology, Development, and Cognition*, 24(2), 186–197. <https://doi.org/10.1080/13825585.2016.1178210>
- Wu, Y., Wang, L., Cai, Z., Bao, L., Ai, P., & Ai, Z. (2017). Prevalence and risk factors of low health literacy: A community-based study in Shanghai, China. *International Journal of Environmental Research and Public Health*, 14(6), 628. <https://doi.org/10.3390/ijerph14060628>
- Wulkotte, E., Schmid-Küpke, N., Neufeind, J., & Wichmann, O. (2022). *COVID-19-Impfquotenmonitoring in Deutschland als Einwanderungsgesellschaft (COVIMO-Fokuserhebung)*. Berlin, Germany.
- Yousaf, O., Grunfeld, E. A., & Hunter, M. S. (2015). A systematic review of the factors associated with delays in medical and psychological help-seeking among men. *Health Psychology Review*, 9(2), 264–276. <https://doi.org/10.1080/17437199.2013.840954>
- Yudell, M., Roberts, D., DeSalle, R., & Tishkoff, S. (2016). Science and society. Taking race out of human genetics. *Science*, 351(6273), 564–565. <https://doi.org/10.1126/science.aac4951>
- Yuen, E. Y. N., Knight, T., Ricciardelli, L. A., & Burney, S. (2018). Health literacy of caregivers of adult care recipients: A systematic scoping review. *Health & Social Care in the Community*, 26(2), e191-e206. <https://doi.org/10.1111/hsc.12368>

Original Publications

Study I

Chakraverty, D., Baumeister, A., Aldin, A., Seven, Ü. S., Monsef, I., Skoetz, N., Woopen, C., Kalbe, E. (2022). Gender differences of health literacy in persons with migration background: A systematic review and meta-analysis. *BMJ Open*, 12(7), e056090. doi:10.1136/bmjopen-2021-056090

Online: <https://bmjopen.bmj.com/content/12/7/e056090> (abgerufen am 16.12.2022)

Study II

Chakraverty, D., Baumeister, A., Aldin, A., Jakob, T., Seven, Ü. S., Woopen, C., Skoetz, N., Kalbe, E. (2020). Gender-specific aspects of health literacy: Perceptions of interactions with migrants among health care providers in Germany. *International Journal of Environmental Research and Public Health*, 17(7),2189. doi:10.3390/ijerph17072189

Online: <https://www.mdpi.com/1660-4601/17/7/2189> (abgerufen am 16.12.2022)

Study III

Baumeister, A., **Chakraverty, D.**, Aldin, A., Seven, Ü. S., Skoetz, N., Kalbe, E., & Woopen, C. (2021). "The system has to be health literate, too" – perspectives among healthcare professionals on health literacy in transcultural treatment settings. *BMC Health Services Research*, 21(1), 716. doi:10.1186/s12913-021-06614-x

Online: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-06614-x> (abgerufen am 16.12.2022)

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