

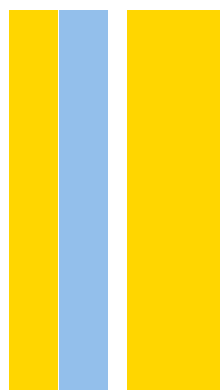
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Involvement in maternal care by migrant women in Portugal

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LIST OF ABBREVIATIONS

IOM – International Organization for Migration

MFMCQ – Migrant Friendly Maternity Care Questionnaire

NHS – National Health System (*Serviço Nacional de Saúde*)

OECD – Organization for Economic Co-operation and Development

PALOP – Portuguese-speaking African countries (*Países Africanos de Língua Oficial Portuguesa*)

PCA – Principal Component Analysis

SEF – Portuguese Immigration and Border Service (*Serviço de Estrangeiros e Fronteiras*)

UK – United Kingdom

UN – United Nations

WHO – World Health Organization

RESUMO

O crescimento gradual da migração internacional em várias partes do mundo representa um desafio para a saúde pública, na medida em que a população migrante, por comparação com a população nativa, tende a ser mais afetada pelas iniquidades no acesso a cuidados e no estado de saúde. Os cuidados maternos carecem de uma atenção especial, pois as barreiras ao acesso são maiores para as mulheres migrantes do que para as nativas, registando-se uma mortalidade perinatal mais elevada entre as primeiras. Para melhorar os cuidados maternos recomenda-se a prestação de cuidados centrados nas necessidades e preferências das mulheres, que promovam, em particular, o seu envolvimento nesse processo. Isso implica providenciar informação relevante e proporcionar o empenhamento das mulheres numa comunicação efetiva, averiguando as suas preferências acerca do tratamento e envolvendo-as na tomada de decisões quando assim o desejarem. Porém, o conhecimento sobre as preferências das migrantes e sobre o seu real envolvimento nos cuidados maternos é escasso. Urge desenvolver investigação neste tópico, uma vez que um envolvimento inadequado pode reforçar desigualdades em saúde previamente existentes. Esta dissertação pretende analisar o envolvimento de mulheres migrantes nos cuidados maternos em Portugal e os fatores que lhe estão associados, numa perspetiva comparativa.

Usaram-se dados recolhidos no âmbito de um estudo transversal mais amplo, desenhado para avaliar a provisão de cuidados perinatais a mulheres migrantes e nativas em Portugal – o bAMBINO. Entre abril de 2017 e dezembro de 2018, foram convidadas a participar no estudo 5703 mulheres com partos registados em 32 maternidades. Por cada mulher migrante convidada, selecionou-se uma nativa cujo parto aconteceu no mesmo dia e com um desfecho semelhante, solicitando a sua participação no estudo (emparelhamento de 1:1). Dois a três meses após o recrutamento, 2863 mulheres (50,2% da amostra inicial) responderam ao Migrant Friendly Maternity Care Questionnaire (MFMCQ), incluindo 1433 mulheres migrantes. Recolheram-se, ainda, informações sobre características sociodemográficas e obstétricas; complicações médicas; perceção das mulheres quanto à informação recebida e à comunicação estabelecida com os profissionais; e as suas preferências em relação aos cuidados de saúde e ao envolvimento na tomada de decisão. Operacionalizou-se o envolvimento nos cuidados maternos a partir de quatro dimensões: informação, comunicação, preferências e tomada de decisão. Adotaram-se as categorias mais frequentemente utilizadas em Portugal para classificar grupos de migrantes, nomeadamente: Países Africanos de Língua Oficial Portuguesa (PALOP), Brasil, Europa de Leste e Outros. Procedeu-se à Análise de Componentes Principais para a totalidade da

amostra e para cada uma das dimensões do envolvimento, separadamente. Utilizou-se o teste ANOVA para comparação de médias e respetivos intervalos de confiança a 95% (IC95%) observados nas portuguesas e nos três principais grupos de mulheres migrantes. Recorreu-se a modelos de regressão linear para estimar a associação entre as características socioeconómicas e obstétricas, e os níveis de envolvimento registados em cada dimensão. Tendo-se observado uma interação entre o nível de escolaridade e o país de origem, apresentam-se os resultados finais estratificados por nível de escolaridade de acordo com os grupos de origem.

Propõe-se uma medida de envolvimento sustentada em quatro dimensões, a qual apresenta um alto grau de confiabilidade em todos os grupos de mulheres migrantes e nas nativas. Os níveis de envolvimento de mulheres migrantes e portuguesas diferem significativamente em todas as dimensões. Quando comparadas com as nativas, todos os grupos de mulheres migrantes apresentam piores resultados nas dimensões da informação, comunicação e preferências. No que respeita a tomada de decisão, as mulheres dos PALOP e as portuguesas apresentam resultados semelhantes (média (IC95%)=50,5 (49,8; 51,3) e 50,3 (49,8; 50,8), respetivamente), os quais são significativamente melhores do que a pontuação registada entre as brasileiras e as mulheres da Europa de Leste (48,5 (47,4; 49,6) e 48,3 (46,9; 49,7), respetivamente). Estas diferenças permanecem após ajuste para a idade, estatuto marital, rendimento, paridade e complicações médicas. Há uma interação significativa entre o nível de escolaridade e o país de origem em três dimensões do envolvimento: informação, comunicação, e tomada de decisão. As mulheres portuguesas e da Europa de Leste mais escolarizadas reportam mais frequentemente melhor informação, verificando-se uma associação inversa entre as brasileiras. As mulheres portuguesas, brasileiras e da Europa de Leste com maior escolaridade tendem a perceber-se menos envolvidas na tomada de decisão do que as menos escolarizadas.

A maioria dos estudos realizados até à data analisou o envolvimento de mulheres migrantes nos cuidados maternos de forma difusa, explorando apenas uma ou duas das dimensões avaliadas neste trabalho. Como tal, esta investigação contribui para o desenvolvimento de uma avaliação compreensiva de um tópico pouco abordado no âmbito da prestação de cuidados cuidados sensíveis à diversidade – o envolvimento de migrantes, o qual é fundamental para implementar cuidados centrados nas pessoas.

Palavras-chave: envolvimento dos utentes, cuidados maternos, migração, cuidados centrados no doente

ABSTRACT

International migration has been growing steadily across the world. This poses a challenge for public health as inequities in access to health care and health status tend to affect migrant groups more negatively than native populations. Provision of maternal care is of particular concern: access to and adequacy of maternal care is worse for migrant women than for natives, while migrant women experience higher perinatal mortality. Recommendations to improve maternal care have emphasised the need to centre care on women's needs and preferences, namely by promoting their involvement in care. This entails providing women with relevant information, engaging them in effective communication, asking for their preferences about treatment and involving them in decision-making when they wish to do so. Yet little is known about migrant women's preferences for and actual involvement in maternal care. Research on this topic is needed because inadequate involvement may lead to the reinforcement of existing health inequalities. This thesis aims to investigate involvement in maternal care by migrant women in Portugal, and its associated factors, from a comparative perspective.

This thesis draws on data from a large scale cross-sectional study designed to assess perinatal care provision for migrant and native women in Portugal – bAMBINO. Between April 2017 and December 2018, a total of 5703 women were invited to take part on the study in 32 maternity units during admission for delivery. For each migrant woman invited, one native woman with the same delivery date and a similar birth outcome was approached and asked to participate (matching by a factor of 1:1). Two to three months after recruitment, 2863 women (50.2% of the initial sample) completed the Migrant Friendly Maternity Care Questionnaire (MFMCQ), including 1433 migrant women. The questionnaire collected information on sociodemographic characteristics, obstetric variables, medical complications and the perception of women about the information received, communication with professionals, preferences regarding care and involvement in decision-making. Involvement in care was operationalised into four dimensions: information, communication, preferences and decision-making. Following the categories most commonly used to group migrants in Portugal, participants were clustered into four groups: Portuguese-speaking African countries (PALOP), Brazil, Eastern Europe and Other. Principal Component Analysis (PCA) was conducted for the entire sample and for each group separately to create a score for each mentioned dimension of involvement. Mean scores and 95% Confidence Intervals (95%CI) were compared between women from Portugal and the three main migrant groups - Brazil, Portuguese-speaking African countries (PALOP) and Eastern Europe - using ANOVA test. Linear regression models were applied to estimate the

association of socioeconomic and obstetric characteristics with the scores of involvement. As an interaction of education and origin was found, final results of scores were shown by education according to each origin group.

A measure of involvement with four dimensions was created showing reliability for all origin groups. Significant differences in the mean scores between migrants and natives for all dimensions of involvement were found. All migrant groups score worse compared to Portuguese natives in the information, communication and preferences dimensions. Regarding decision making, PALOP and Portuguese women scored similarly (mean(95%CI)=50.5 (49.8,51.3)), and 50.3,(49.8, 50.8), respectively) and Brazilian and Eastern European score significantly lower (48.5 (47.4, 49.6) and 48.3 (46.9, 49.7), respectively) than the other groups. These differences remain after adjustment for age, marital status, income, parity, and medical complications. A significant interaction between education and country of origin was identified for three dimensions of involvement: information, communication and decision-making. While for Portuguese and Eastern European women higher education was associated with higher levels of information, for Brazilian women it was associated with lower levels of information. Highly educated Portuguese, Brazilians and Eastern Europeans perceived themselves less involved in decision-making than the lower educated.

To date, most existing studies have addressed migrant involvement in maternal care in a scattered fashion, focusing on only one or two of the dimensions considered in this study. As such, this thesis contributes to provide a comprehensive assessment of an understudied aspect of diversity-competent care provision – migrant user involvement, that is crucial to the implementation of patient-centred care.

Keywords: user involvement, maternal care, migration, patient-centred care

1. INTRODUCTION

The number of international migrants¹ has been growing globally in recent years and is now estimated at 258 million, half of whom are women (IOM, 2019). The growing number of people residing outside of their country of birth poses a public health challenge as inequities in access to health care and health status tend to affect migrants more negatively than the native population (Bradby *et al.*, 2015).

Access and adequacy of maternal care are reported to be worse for migrants (especially for those with irregular status) than for native women (Women Political Leaders Global Forum, 2018). This is particularly problematic because pregnant women constitute a group with special vulnerability among migrants (WHO, 2018a; Women Political Leaders Global Forum, 2018). Disparities in maternal mental health and perinatal mortality have been found across host countries to the disadvantage of migrant women (Hayes, Enohumah and Mccaul, 2011; Almeida, Caldas, *et al.*, 2013; Higginbottom *et al.*, 2013; Pedersen *et al.*, 2014; Hennegan, Redshaw and Kruske, 2015; Van Den Akker and Van Roosmalen, 2016). Other perinatal outcomes vary depending on migrants' country of origin, with some groups displaying better, others equal and others worse health than the native women (Lewis, 2007; Teixeira *et al.*, 2013; Urquia *et al.*, 2014, 2015; Keygnaert *et al.*, 2016; Heslehurst *et al.*, 2018).

Maternal and child health is a public health priority under the Sustainable Development Goals (UN, 2016). Therefore, many guidelines have been published in recent years on how to improve maternal care. The recommendations are based on the premise that women want to be involved in decision-making and their focus is set on electing women's preferences and choices through effective communication (WHO, 2018b). This can be summarized under the concept of involvement in care that refers to "involving patients in discussion about their condition, providing them with relevant information, asking for their opinion on possible treatments, and involving them in the decision-making process, should they so wish." (Thompson, 2007). However, there is limited comparative research about user involvement in maternal care among migrant and native women. Research on this is important because inadequate involvement can lead to differences in the quality of care received which, in turn, can exacerbate existing inequities in health outcomes (Jonkers *et al.*, 2011; Esscher *et al.*, 2014).

¹ There is no universally accepted definition of the term "migrant" on the international level. For data collection purposes the UN considers migrants as persons having moved to a country other than they were born in (UN, 1998, 2017). This definition of migrants was also adapted by the present thesis.

Access to adequate information about maternal care is not equally distributed among native and ethnic minority and migrant service users (Redshaw and Heikkila, 2010; Redshaw and Henderson, 2015). Although migrants and ethnic minorities may require additional, tailor-made information to navigate maternal care services, their informational needs are often disregarded by health professionals who assume they have sufficient knowledge (Ascoly, Van Halsema and Keyzers, 2001; Balaam *et al.*, 2013; Phillimore, 2016). Communication problems are also more frequently reported by migrant women than natives (Yelland *et al.*, 2015) with migrants experiencing a lack of confidence to discuss concerns and on being afraid to ask questions (Balaam *et al.*, 2013). Furthermore, migrant women may be unable to express their preferences due to gender or authority hierarchies and unfamiliarity with the care system and rights in their host country (Merry *et al.*, 2016). Finally, some studies point to migrant women being less involved in decision-making over the course of their maternity care when compared to native women (Henderson, Gao and Redshaw, 2013; Hennegan, Redshaw and Kruske, 2015; Redshaw and Henderson, 2015; Yelland *et al.*, 2015). Although these studies focus on involvement by migrant women in maternal care they tend to focus on only one of the four dimensions of involvement described earlier (i.e. provision of information, adequate communication, elicitation of preferences and decision-making) and where comparisons are made between migrants and natives, studies include small samples of the former group (Small *et al.*, 2014), which limits the explanatory power of the results.

This thesis aims to address this gap by comparing migrant and native women's involvement in maternal care in Portugal, and its associated factors. To do so, a review of the literature was done to identify a comprehensive definition of involvement. This definition was then used to create a measure to assess the four dimensions of involvement for each migrant group in comparison to natives.

1.1 User involvement in health care

The way care is provided is deeply intertwined with the model of illness prevailing at a given time and place. Advances in microbiology in the late 18th century enabled diseases to be retraced to their biological cause and turned objective instruments of disease assessment into the gold-standard (Kaba and Sooriakumaran, 2007). This led to the emergence of the biomedical model of care, in which the patient is viewed as a passive carrier of the disease and the doctor as an expert applying tests to identify the disease and decide on treatment. Within this model, the patient is expected to comply with treatment without any questioning, forming the basis for what is commonly referred to as a paternalistic doctor-patient relationship (Roter, 2000).

The biomedical model reigned until the late 19th century when it was challenged by the establishment of psychology as an independent discipline within the medical realm. Psychology proposed a shift from the study of the body to that of the mind as its object of interest. This spurred a wider shift in the understanding of disease that went from a mere biological problem to include mental and social aspects of illness. (Gerrig and Zimbardo, 2015). However, being a new discipline, competing approaches existed within psychology. As a result of advances in cognitive neuroscience, the biological explanation of mental processes and disorders started gaining popularity amongst psychologists and some argued that an explanation for mental illnesses could be found within the biomedical model. The American internist and psychiatrist Georg Engel strongly opposed this idea. He argued that the biomedical model was insufficient even to attend to modern non-psychiatric medical problems., proposing instead a biopsychosocial model that included not only the biological but also the psychological and social dimensions of illness. According to Engel, illness always carries psychological and social factors, such as cultural and individual expressions of symptoms, which are crucial for making an adequate diagnosis. He also drew on public health research, linking illness to social factors such as people's living conditions (Engel, 1977).

The social and psychological dimensions of illness were not promptly reflected in medical practice. Medicine was focused on the objective identification of disease and subjectivity was generally perceived as a deterrent of objectivity. However, as the biomedical model of illness gained ground, individual's subjective experiences became central to diagnosis and treatment and the focus moved to the patient and to the relationship between doctors and patients, as a crucial element for eliciting the illness experience (McWhinney, 1986; Stewart, Brown and Wayne, 2014). This idea was set forward by the psychoanalyst Michael Balint in the 1950s, who sought to apply the methods used by psychology to medical practice. In

his seminars, Balint taught practitioners about the importance of the psychological and social situation of the patient and the influence of the doctor-patient relationship on diagnosis and treatment (Balint, 1955). Balint focused on the person as a whole, providing an alternative to the biomedical model of disease that became known as patient-centred medicine (Balint, 1969).

The patient-centred care approach has gained increasing acceptance since the 1960s, taking up numerous definitions and leading to various empirical studies. At the turn of the century, Mead and Bower (2000) devised a conceptual framework of patient-centred care based on an empirical literature review. They distinguished it from the biomedical care model in five dimensions. The first dimension is inspired by Engel's biopsychosocial view of illness and therefore named the "biopsychosocial perspective". The remaining four dimensions strongly lean on Balint's contributes. The dimension "patient-as-person" describes the importance of patients' experiences of illness within their psychological and social context. "Sharing power and responsibility" and "therapeutic alliance" describe the nature of the relationship, which should be egalitarian, and the importance of it. Lastly, the "doctor-as-patient" stands for the subjectivity of the practitioner (Mead and Bower, 2000). Overall, patient-centred care can be defined as the process by which health care professionals and patients work in partnership to identify and respond to patients' needs, preferences and values (Pulvirenti *et al.*, 2011).

In 2001, the Institute of Medicine in the United States became the first health institution to include patient-centred care as a pillar of quality care (Institute of Medicine, 2001). Others followed its footsteps and patient-centred care is now embedded in various supra-national policy guidelines to improve care in all areas (WHO, 2011, 2016). Those guidelines adopt a broader definition of patient-centred care, as care sensitive to patients' individual preferences. This has not only widened the scope of its application, but also led to a reconceptualization of the term "patient". Being historically attached with the passive sick-role (Parsons, 1951), the use of the term patient has been contested and an alternative has been proposed: "service user" (Vahdat *et al.*, 2014). This is the term that will be adopted in this thesis.

Health care users can be involved in health-related decision-making at various levels. At the macro level, users can be involved in the policy-making process by setting priorities or defining budgets and policy implementation (Arnstein, 1969; Butow *et al.*, 2011; De Freitas *et al.*, 2014; Escobar-Ballesta, García-Ramírez and De Freitas, 2018). At the meso-level, patients can be involved in service development, planning and delivery, the education and training of professionals and service evaluation (De Freitas and Martin, 2015; Castro *et al.*,

2016), as well as in health research planning, recruitment or dissemination (Boote, Telford and Cooper, 2002; Brett *et al.*, 2014; De Freitas *et al.*, 2017). Finally, at the micro-level, service users can be involved by being informed and making decisions about treatment options during consultations, treatments and continuing care (Thompson, 2007; Fredriksson, Eriksson and Tritter, 2017). The involvement of health care users in their own care and treatment is a core aspect of “patient-centred care” (Pulvirenti *et al.*, 2011) and the main topic explored by this thesis.

User involvement at the individual level is often promoted on ethical grounds, as users carry the consequences and costs of their treatment (Souliotis, 2016). With medical progress, treatments have become more invasive and cost-intensive. Furthermore, treatment options have widened, with corresponding advantages and disadvantages. This has made treatment choices that are sensitive to users’ preferences increasingly more relevant. Patient rights charts have hence started to include the right of patients to receive information tailored to their needs and to participate in decision-making (European Consultation on the Rights of Patients, 1994; Cotturri *et al.*, 2002). Furthermore, in various countries, user involvement in care and treatment is viewed as an important feature of good quality health care (Institute of Medicine, 2001; Kerssens *et al.*, 2004). In an attempt to gain public trust, approval and satisfaction western health care systems have been increasingly promoting policy on informed consent and shared decision-making that take into consideration people’s values, beliefs and attitudes (Vahdat *et al.*, 2014).

Despite increased recognition, user involvement in care remains subject to great heterogeneity in terms of definitions and measurements (Griffi, 2004). The following section provides a review of user involvement’s definitions and distinguishes four key dimensions that will be used to assess involvement in maternal care in the scope of this thesis.

1.1.1 Defining user involvement in health care

There is no consensus in the literature concerning the definition of user involvement in health care treatment. First, a variety of terms are used to describe the concept. Aside from the term “involvement”, “participation” is also commonly adopted. Some authors argue that these labels describe different concepts with involvement being the precursor of participation on a continuum (Kvæl *et al.*, 2018). Despite these proposals, the terms are mostly used interchangeably (Lerman *et al.*, 1990). In addition, words such as “partnership” and “collaboration” (Vahdat *et al.*, 2014) and “engagement” (Higgins, Larson and Schnall, 2017) may also be used, though less frequently, with a similar meaning.

Regarding content, definitions of user involvement essentially differ on the emphasis put on decision-making and on the roles of the actors involved, namely service users and health professionals. Many authors focus on the professional's act of involving patients by providing information, explanation, actively inviting patients to participate and considering their opinion (Wensing *et al.*, 2007; Epstein and Street, 2011; Tambuyzer and Van Audenhove, 2015). In the field of nursing care, however, the focus tends to be more on the process of care, rather than on the single act of decision-making. It is assumed that for patients to be involved: there has to be a good relationship between patient and professional; the knowledge gap between the parties should be closed by providing adequate information; professionals should give up some of their power; and, there should be some engagement of the patient in treatment decision-making (including its application) and that engagement should be associated with a benefit for the patient (Cahill, 1996; Eldh, 2006; Sahlsten, Larsson and Plos, 2008).

One of the most cited models of involvement in care – the shared decision-making model – focuses on the act of decision-making. The model was developed by Charles and colleagues (1997) to overcome the limitations of and create a middle ground between two other decision-making models: the paternalistic model and the informed decision-making model. The paternalistic model is influenced by Parson's notion of the "sick role". According to Parson (1951), the sick role status temporarily granted to patients confers them with both rights and duties, namely dismissal from work and family related-activities and the obligation to get well by complying with treatment. Following this assumption, the paternalistic model approach ascribes the patient a passive and dependent role whose wellness relies on the expertise and advice of health professionals' that must be followed without questioning. On the opposite side of the spectrum, is the informed decision-making model according to which health professionals are expected to provide technical information about the risks of alternative treatment options and clinical effectiveness upon which patients make treatment decisions according to their preferences. The shared decision-making model, on the other hand, acknowledges the need to involve at least two parties – the service user and the health professional – in a two-way exchange of information and in building a consensus on the preferred treatment, which should be implemented under both parties' agreement (Charles, Gafini and Whelan, 1997).

The emphasis given to decision-making by the shared decision-making model and its proponents has been criticized on many accounts. Investigations have shown that the process of information-giving and the health professionals' facilitating behaviour might be more important to users than actually making a decision about treatment (Lerman *et al.*, 1990). Research further shows that users want to be involved in medical decision-making

to different degrees (Say et al 2006; Brom et al 2014; Brabers et al 2016). When being involved at the preferred level, users show positive health outcomes (Vogel, Leonhart and Helmes, 2009). As a result, other definitions of user involvement in care have focused more on the rights and opportunities of patients to be involved, rather than on the obligation to get involved and the importance of patients' preferences (Castro *et al.*, 2016). Entwistle and Watt (2006), for example, have advocated for the need for a broader framework of involvement that does not focus solely on treatment decision-making. They argue that the subjective feeling and perception of both users and professionals is also an important part of involvement. Service users share different views of what it means to be involved. For some users, involvement might signify leaving the decision about treatment to the health professional. It is therefore important to understand what involvement means for individual users (Entwistle and Watt, 2006).

Andrew Thompson (2007) undertook a study that aimed to explore the views and preferences of laypeople regarding involvement in their own care. To that end, individual and group interviews were conducted with a theoretically driven sample including participants differing in age, gender, ethnicity, social class, health needs and experiences with the health care system. According to the participants, involvement included one or more of the following attributes: information, explanation, openness, communication, shared knowledge, emotional care, exploration of choices, dialogue, and decision-making. Based on the most frequently mentioned attributes, Thompson proposes a definition of involvement entailing a range of steps where user decision-making is presented as an opportunity rather than an obligation: "involving patients in discussion about their condition, providing them with relevant information, asking for their opinion on possible treatments, and involving them in the decision-making process, should they so wish" (Thompson, 2007). This definition will be used to achieve the purposes of this thesis. To operationalize the concept of involvement, the definition will be divided into four dimensions, namely: "information", which assesses whether service users were provided with adequate information; "communication", which assesses whether users were involved in a dialogue about the health issue and treatment alternatives; "preferences", which assesses whether users were invited to express treatment preferences; and "decision-making", which evaluates whether users were adequately involved in decision-making. Further details about the operationalization of these dimensions are provided in the Methods section.

1.1.2 Facilitators of and constraints to user involvement in maternal care

User involvement in care and treatment is influenced by a range of factors, including: disease-related factors (e.g. symptoms, illness severity; type of intervention performed); patient-related factors (e.g. demographic and personal characteristics, beliefs, values and practices about health care, cultural knowledge and integration); health professional-related factors (e.g. interpersonal communication skills, beliefs, values and attitudes toward care provision, cultural competence); and, factors related to health care settings (e.g. organizational policy and culture, quality standards, cultural competence). Empirical studies show that several of these factors are also relevant for user involvement in maternal care (Vahdat *et al.*, 2014).

Various studies suggest that the degree of involvement in maternal care varies according to the type of intervention performed. A study conducted in Israel by Berg and Benbassat (2001) shows that information provision and involvement in decision-making are lower for procedures that are considered routine (e.g. episiotomy and fetal monitoring) and higher for more “special” interventions (e.g. caesarean or epidural analgesia). This was corroborated by another study carried out in New Zealand, which showed that almost all women were informed about and consulted on the use of epidural analgesia (88%) and caesarean section (94%), while for episiotomy and fetal monitoring the proportion of women informed and consulted fell to under 80%, and the risks and benefits of vaginal examination, another key routine procedure, were explained to only 60% of the women (Thompson and Miller, 2014). A study about women’s perceptions of informed decision-making in maternal care done in the United Kingdom found a similar pattern. While almost half of the women perceived to have made an informed decision on the use of epidural analgesia, only one-third perceived to have had an active role in decision-making about fetal heart monitoring. The highest proportion of perceived involvement in decision-making occurred in regard to baby screening tests (75%) (O’Cathain *et al.*, 2002), which is considered a “special” procedure following Berg and Benbassat’s typology (Berg and Benbassat, 2001).

The setting and organizational culture in which care is provided might also have an effect on user involvement. One study found that care being provided in hospitals is negatively associated with user involvement (Berg and Benbassat, 2001). Another study found differences between maternity units and users’ perceived level of involvement, even after adjustment for other influencing factors (O’Cathain *et al.*, 2002). In several studies, women reported higher levels of involvement when care was provided by midwives, as opposed to when care was delivered by physicians (Bylund, 2005; Fair and Morrison, 2012; Vedam *et al.*, 2017).

Health professionals' individual characteristics also play a role in women's involvement in maternal care. First, professionals have to be open to the idea of involving users and be ready to share their power (Nair *et al.*, 2014). Furthermore, their communication and interpersonal skills are crucial for women's involvement. Interpersonal communication skills such as the ability to create an atmosphere of openness, in which women feel respected, appreciated and safe to be involved, and in which professionals are responsive to women's wishes and cues and react by adjusting the communication style used, have a positive impact on women's involvement (Green and Baston, 2003; Nieuwenhuijze, Low, *et al.*, 2014). Conversely, assertive wording of treatment proposals might impair women's involvement in shared decision-making (Jackson, Land and Holmes, 2017). Professional's communication skills can be improved through training. Schooling in communication, for example, was found to have a positive influence on professionals' ability to provide information (Rowe *et al.*, 2002). In turn, having information and knowledge on procedures and issues surrounding maternal care makes women more likely to express wishes and follow their preferences (Nieuwenhuijze, Korstjens, *et al.*, 2014).

Women's access to information and knowledge can be further increased through pregnancy care decision aids (Dugas *et al.*, 2012; Nair *et al.*, 2014). Decision aids are used to enable the provision of quality information and to facilitate women's involvement in decision-making regarding care. They can be employed at a variety of decision points during maternal care and come in several formats, such as audio, video, written information or web-based tools. However, understanding of which tools might be efficient in which situation is still limited. Furthermore, there is a lack of practical implementation, due to barriers like shortage of time and space or awareness for decision-aids (Stevens *et al.*, 2015).

Women's individual traits may influence their level of involvement. Associations have mainly been found for obstetric and sociodemographic characteristics. Multiparity, for example, has been associated with a higher feeling of involvement (O'Cathain *et al.*, 2002; Green and Baston, 2003). This perception could, however, come from a lower preference for involvement of multiparous women (O'Cathain *et al.*, 2002). Apart from parity, medical complications might reduce women's ability to be involved in decision-making (Berg and Benbassat, 2001; Fair and Morrison, 2012). During uncomplicated childbirth, many choices to be made can be put under the category of preference-sensitive, where there are several options and no best-practice (e.g. place of birth, birthing position, pain control) (WHO, 2018b) and most (Berg and Benbassat, 2001) women show high preferences for being involved in decision-making (Hundley, Ryan and Graham, 2001; Declercq *et al.*, 2007). When complications occur the situation changes. In a British study, women reported complying to health professionals' choices, even against their own preferences out of fear

for their baby in emergency situations. Some women describe not even wanting to be consulted anymore, as they receive it as additional stressor, and just leave the decision-making up to the health experts (Armstrong and Kenyon, 2017).

Regarding sociodemographic factors, some studies found that age has an effect on involvement: younger age was associated with perceived non-involvement (Berg and Benbassat, 2001) and older age was associated with having a choice in birthing position (Jonge *et al.*, 2009). Having a choice in birthing position was also found to be associated with high educated (Ibid.). Contrarily, findings from a study measuring self-reported involvement showed that women with low education felt more involved (O'Cathain *et al.*, 2002). However, the same women also reported a lower preference for involvement. The same pattern was found for women working in manual labour jobs (Ibid.). A qualitative study about maternal care delivered to socially disadvantaged women gives more insight into those factors. Although the women expressed a desire to be involved, they were unable to do so, due to barriers such as lack of information and deficits in communication with professionals (e.g. caused by lack of time to ask questions). Social and cultural inhibiting factors were also apparent: women were scared of not conforming to routine procedures and socially conditioned to conform to health professional directives (Ebert *et al.*, 2013). Ethnicity also impacts on involvement in maternal care. A study shows that women with Arab ethnicity in Israel reported a higher perceived non-involvement (Berg and Benbassat, 2001). Given the centrality of ethnicity in this thesis, its impact is discussed in greater detail in the next section.

1.1.3 Ethnic differences in patient involvement in maternal care

There is limited empirical evidence about the involvement of migrant and ethnic minority women in maternal care and most of the existing evidence derives from non-comparative qualitative studies. The few quantitative studies that compare between natives and migrant populations tend to include small samples of the latter group (Small *et al.*, 2014) and to focus on only one of the four dimensions of involvement described earlier, namely the provision of information, adequate communication, elicitation of preferences and decision-making.

Access to adequate information about maternal care is not equally distributed among native and ethnic minority and migrant service users. Two population-based studies carried out in the United Kingdom (UK) show that ethnic and black women born outside the UK are provided with less information when compared to white UK-born women (Redshaw and Heikkila, 2010; Redshaw and Henderson, 2015). Although migrants and ethnic minorities

may require additional, tailor-made information to navigate maternal care services, their informational needs are often disregarded by health professionals who assume they have sufficient knowledge (Ascoly, Van Halsema and Keyzers, 2001; Balaam *et al.*, 2013; Phillimore, 2016) and continue to use medical jargon that can increase their difficulties in understanding such basic rights as informed consent (Higginbottom *et al.*, 2016). This is further exacerbated by the lack of information provision on labour procedures and pain management as reported by Muslim migrant women living in Australia (Reitmanova and Gustafson, 2008).

Communication problems are more frequently reported by migrant and ethnic minority women when compared to natives and result in more severe consequences for the former. A population-based study on maternal care in Australia including migrant and native women shows that migrant women were less likely to be kept informed and to receive sufficient explanation throughout the provision of care when compared to native Australian women (Yelland *et al.*, 2015). Ethnic minority women in the UK were less likely to be spoken to in a way that they could understand (Henderson, Gao and Redshaw, 2013) and rated communication with staff during maternal care worse than native women (Redshaw and Heikkila, 2010). Suboptimal communication was also more often reported by migrant compared to non-migrant women in Sweden and France (Philibert, Deneux-Tharaux and Bouvier-Colle, 2008; Esscher *et al.*, 2014). Poor communication was found to be associated with severe maternal morbidity in the Netherlands: care providers not listening to service users and users not being able to take an active role in the consultation were reported as factors for disease development by migrants but not by natives (Jonkers *et al.*, 2011). Access to quality communication might further vary between migrant groups. An analysis of data from the UK stratifying migrants by the origin found that migrants from EU accession countries reported worse communication with health professionals when compared to migrants from the rest of the world (Henderson *et al.*, 2018). As the comparison group is migrants from the rest of the world and therefore a quite heterogeneous group, the authors provide no explanation for differences between migrant groups. As an explanation for disparities between migrants from accession countries and the UK-born women, the authors propose the differences in care provision between Eastern European countries and in the UK. Those can result in discrepancies between expectation and experience of care for migrants, which is often not addressed by health care professionals. Further language barriers are mentioned. A literature review focusing on the provision of maternal care to migrants in Europe found that several studies report on migrants experiencing a lack of confidence to discuss concerns and on being afraid to ask questions (Balaam *et al.*, 2013).

Expression of preferences regarding maternal care is a subject less explored by the literature. Although preferences surrounding maternal care might differ from woman to woman, there is also a cultural component. Women from different ethnic backgrounds may have different views on pain management, birth companion and birthing position (Chalmers, 2013; Higginbottom *et al.*, 2013; Lindsay *et al.*, 2016). Those preferences may differ from the preferences prevailing in the host country. Yet, migrant women may be unable to express their preferences due to gender or authority hierarchies and unfamiliarity with the care system and rights in their host country (Merry *et al.*, 2016). Furthermore, professionals are reported to sometimes assume that migrant women have adjusted to predominant preferences in the host country and other times to assume preferences based on the women's country of origin that do not necessarily match real preferences (Hayes, Enohumah and Mccaul, 2011; Merry *et al.*, 2016). It is therefore important that professionals elicit migrant women's preferences and that they are sensitive to different needs. Yet, few studies focus on the influence of migratory experience and ethnicity on women's preferences. A study done in the UK found that ethnic minority women were less likely to feel able to move around during labour and birth (Henderson, Gao and Redshaw, 2013). Another study from the UK found that ethnic minority women were less likely than white women to experience the ability to move and choosing a companion (Redshaw *et al.*, 2007).

Involvement in decision-making regarding maternal care appears to be influenced by migrant and ethnic minority women's socio-cultural background and previous experiences with care provision, as well as by health professionals' perceptions about them. Some migrant groups are more acquainted with paternalistic doctor-patient relationships and expect health professionals to make decisions without involving them (Binder *et al.*, 2012). Nevertheless, some studies show that health professionals hold misconceptions about migrant women being unable to make decisions (Ascoly, Van Halsema and Keyzers, 2001; Higginbottom *et al.*, 2016). This helps to explain the results of several studies that point to migrant women being less involved in decision-making over the course of their maternity care when compared to native women (Henderson, Gao and Redshaw, 2013; Hennegan, Redshaw and Kruske, 2015; Redshaw and Henderson, 2015; Yelland *et al.*, 2015). Other explanations include the unresponsiveness of the health care system and the health professionals to needs of women from cultural backgrounds, including information needs or care preferences, language difficulties, that might hinder understanding and expression during the decision-making process, and differences in cultural beliefs (e.g. on the best option or the role of health professional and user).

1.2 Migration, maternal care and user involvement in Portugal

1.2.1 Migrant population: a brief overview

Portugal has historically been a country of emigration, which began as early as the 15th century with the colonialization of parts of the African coast. Emigration continued up until the start of the 20th century with large inflows to Brazil and persisted until the late 1970s with France becoming one of the main destinations for Portuguese emigrants (Vieira and Trindade, 2008).

Immigration to Portugal became relevant in the early 1980s when immigrants from Brazil and Portugal's former colonies in Africa started to arrive. The fall of dictatorship in 1974 and the subsequent independence of Portugal's African colonies was followed by an influx of migrants from Angola, Cape Verde, Mozambique, Guinea Bissau, and São Tomé e Príncipe. Portugal's accession to the European Economic Community in 1986 was accompanied by a large flow of Brazilian labour immigrants (initially mainly qualified middle-class immigrants and later on mostly unskilled working-class immigrants) and an intensification of immigration from Portuguese-Speaking African Countries (PALOP) (mostly unskilled migrants) (De Freitas, 2003). Immigration from the PALOPs was mostly male labour migration in the construction sector. Nonetheless, there was also a considerable share of female migration in domestic work (Pereira, 2013). Special contracts made it easy for single women and mothers to get a working visa through domestic work. Especially Cabo Verdeans migrated through this route (Miranda, 2009). Brazilian migrants were more balanced in gender, with almost equal distribution of male and female migration (SEF, 2001). The earlier wave of migrants with higher qualification occupied positions in marketing, informatics, and dentistry. Amongst later migrants with lower qualifications, men mainly took jobs in construction, women in restaurants or domestic services (Pereira and Esteves, 2017).

A thriving construction sector, the labour opportunities presented by Expo-98 and less restrictive immigration policies (i.e. compared to countries in Northern Europe) led to the emergence of a new migration flow from Eastern Europe in the mid-1990s. Most of those new arrivals were economic migrants seeking better salaries and living conditions. The first immigrants from Eastern Europe were mostly male, many of whom highly qualified, who came to work on construction and processing industries. They entered Portugal on short term visas, and many remained after their visa expired, falling into an irregular status. In 2001, Portugal promoted a regularization campaign, enabling undocumented migrants to get a "permit to stay". Over half of the permits were issued to Eastern Europeans, especially

to Ukrainians, followed by immigrants from Moldova, Russia, and Romania. This measure led to a massive increase in the number of legal migrants residing in Portugal. From 2000 to 2001 the number increased by 68% to 350500 migrant and Ukrainians briefly became the largest migrant group (45200). The number of new arrivals and the total stock of this migrant group has been declining since 2003, likely due to increasing migrant unemployment (Marques and Góis, 2007).

The financial crisis that caused Portugal to request a bailout in 2011 (Legido-Quigley *et al.*, 2016) also led to an overall decrease in migration inflow and stock which only resumed in 2016. In recent years, there has been an increase in migrants from countries belonging to the European Union and from China, with migrants from the latter being mostly students and business people (Gaspar, 2017; SEF, 2019). Portugal's commitment to the European Agenda for Migration and the United Nations High Commission for Refugees' relocation programme has made way for the entry of relocated asylum seekers and resettled refugees (De Freitas and Maia, forthcoming). Although this migrant population is still small, it is expected to grow in upcoming years.

Recent migration trends

The number of foreign residents registered in Portugal in 2018 is the highest ever recorded². With an increase by over 50% compared to 2017, the foreign population is now set at 480,300 people, making up 4.7% of the total population. (SEF, 2019). The number of foreign-born residents, which also includes people who have acquired Portuguese citizenship, recorded by the 2011 Census is almost double that of foreign residents at 871,813 (8.25% of the total population) (Moreira, 2014). According to estimates of the Organization for Economic Co-Operation and Development (OECD), this number has risen to 893,300 in 2015, corresponding to 8.6% of the total population (OECD, 2018).

Looking at the share of the foreign population by nationality, Brazilians are clearly the largest immigrant group (21.9%), followed by Cabo Verdeans (7.2%), Romanians (86.4%) and Ukrainians (6.1%). The latter are closely followed by a growing Chinese community (5.3%) and citizens from other EU countries, namely the UK (5.5%), France (4.1%) and Italy (3.9%). Immigrants from Angola and Guinea Bissau make up 3.8% and 3.4% of the total

² Annual data on immigration in Portugal is only available for the population of foreign nationality, measured by resident permits issued by the Portuguese Immigration and Borders Service (SEF). Official data on the foreign-born population (which includes both the migrants who have obtained Portuguese citizenship and those who have not) is solely collected in the Portuguese census carried out every ten years, the last of which was made in 2011. For higher actuality, in-depth data for migrants with foreign nationality will be presented and where possible compared to older data for migrants by country of birth. It is important to state, that none of the data sources consider irregular immigration and therefore they are not a complete representation of the migrant population in Portugal.

foreign population living in Portugal, respectively. Half of all foreigners are women, with higher proportions amongst Brazilian and PALOP immigrants and lower amongst Eastern Europeans (SEF, 2019). Most of the migrant population falls within the working age from 20 to 49. Of the migrant population 60.5% belong to this group, compared to 38% of the native population. The youngest amongst migrants are Romanians, Brazilians, Angolans and Bissau-Guineans, the oldest French and British. More women (62%) than men (59%) are of working age (Oliveira and Gomes, 2018a). The vast majority of the foreign population (68,9%) lives in the southern coastal areas of Lisbon, Faro, and Setúbal. About 20% live in the northern regions of Braga, Porto, and Viana do Castelo, which have seen an increase of migrant population in recent years (SEF, 2019).

Looking at the foreign-born population as registered in 2011, the share of immigrants from PALOP) becomes substantially higher (39.7%), especially those from Angola (18.7%). This could be due to special agreements that made it easier for immigrants from PALOP to get naturalized. Brazil comes second with a share of 16%. There is also a high share of people from France within the foreign-born population. This is explained by return Portuguese emigrants and of their offspring, who was born outside Portugal. The proportion of migrants from Eastern European on the other hand diminishes when looking at the foreign-born population. Migrants from Ukraine make up 3.8% of the foreign-born population in 2011 and 2.7% were born in Romania (Moreira, 2014; OECD, 2018).

In Portugal, studies typically aggregate the main migrant groups in the following way: Brazilians, PALOP and Eastern Europeans. In average, migrants from PALOP have the lowest level of education compared to the other two groups. They tend to take lower-skilled jobs in cleaning and the construction sector. Brazilians are intermediate level of education (high school diploma) and some professional specialization and they are mostly employed in the service sector (e.g. restaurants) (Padilla, 2006). Eastern Europeans have the highest level of education both compared to PALOP and Brazilians and to the Portuguese native population, with a high percentage of university graduates (21%). Most were formerly employed as highly skilled labourers prior to migrating (e.g. scientific positions, engineering) In Portugal, however, they mostly work unskilled jobs (e.g. construction, industry). (Baganha, Marques and Góis, 2004). In recent years some changes occurred in the employment of migrants. Some Brazilian migrants have started to open their own business. Female migrants especially in the aesthetic field. Recent migrant flows from Brazil further include growing numbers of international students (Pereira and Esteves, 2017). Amongst Ukrainian migrants, a unneglectable proportion also started opening their own business, in gastronomy, car repair, construction and sewing (Fonseca and Pereira, 2016).

1.2.2 Migrants' entitlements to health care

Despite previous waves of migration, legislation providing for migrants' access to health care was only issued by the Ministry of Health (Dispatch 25 360/2001) in 2001, at the height of a large influx of newcomers. It stated the right of all immigrants to be attended in a National Health Service (NHS) – health Centre or hospital – without these services being able to refuse to treat them on any grounds, including their status, which meant that undocumented migrants could also access care (Ingleby *et al.*, 2005). A number of anti-discrimination laws exist that encompass health care and enforce immigrants' entitlement to it (Fonseca *et al.*, 2009; Oliveira and Gomes, 2018b). At present, regular migrants enjoy entitlement to health care on the same conditions as country nationals, provided that they are able to present a residence permit and a document showing that they have been residing in the country for over 90 days³ (Campos, 2001; Oliveira and Gomes, 2018b). Beyond that, some countries have special agreements with Portugal. Citizens from the European Union, the European Economic Community, and Switzerland are granted access to the health system on the same level as nationals if they follow the administrative requirements associated with moving to Portugal. Furthermore, there exist special social security agreements with Brazil, Cape Verde, Morocco and Tunisia, which allows citizens from those countries the use of the health services equally to nationals, when proof of residency is guaranteed (IOM, 2016; Oliveira and Gomes, 2018b).

Undocumented migrants are entitled to health care services if they present a document proofing their stay in Portugal for longer than 90 days. That document can be obtained from their parish council. In principle, migrants are required to pay for the services provided by the NHS. However, they have a right to claim special exemptions from these costs when in situations of social exclusion or financial need and upon presenting proof of those circumstances issued by the competent authorities. Undocumented migrants can be exempted from payment in the case of urgent and life-saving health care, communicable diseases posing a danger to public health, vaccinations, healthcare for children under 12 and maternal and childcare, including care during pregnancy, childbirth and the postpartum period (IOM, 2016). The same exemptions apply for regular migrants not contributing to social security (Oliveira and Gomes, 2018b).

The use of services provided by the NHS requires some out-of-pocket payments in the form of user fees or co-payments. Exemptions from out-of-pocket payments can be requested

³ Migrants with a residence permit who have been in the country for less than 90 days can get a temporary health card that entitles them to care in the case of urgent and life-saving health care, communicable diseases posing a danger to public health, vaccinations, healthcare for children under 12 and maternal and childcare, including care during pregnancy, childbirth and the postpartum period (IOM, 2016).

on the grounds of financial need by all residents, including regular migrants and Portuguese citizens. However, following the Troika bailout in 2012, which led to an increase of co-payments (e.g. user fees almost doubled) (Legido-Quigley *et al.*, 2016), some administrative changes to claim exemptions from payment have been implemented. Those changes include, among others, the need for a proof of income from the tax office, which requires the claimant to have a valid home address (Rodrigues and Schulmann, 2014). This can become a considerable barrier to undocumented migrants who typically lack the necessary documents. The budget cuts have also led to health professionals discriminating more against the migrant population and make them pay if the migration status and grounds of exemptions are unclear, this has been a special problem in maternity care (Rodrigues and Schulmann, 2014; IOM, 2016). Another worsening for migrants due to financial cuts is the reduction of the presence of cultural mediators in hospitals (Rodrigues and Schulmann, 2014). On top of that other barriers exist for the migrant population, especially undocumented. There is a lack of information on the rights of migrants on both the migrant and professionals side (Rodrigues and Schulmann, 2014; IOM, 2016). However, this is targeted with policies aiming at better provision of information to both groups (Ledoux *et al.*, 2018). Policies exist for making health care more culturally sensitive, by training health staff in intercultural care, recruiting cultural diverse staff and the creation of cultural-sensitive hospitals (Ledoux *et al.*, 2018). Yet, those measures are only scarcely implemented (IOM, 2016). For undocumented migrants, a fear of being reported to immigration services presents a barrier to the access of health care (Rodrigues and Schulmann, 2014) even though the reporting of undocumented migrants when accessing the health system, is prohibited by law (IOM, 2016; Ledoux *et al.*, 2018). Overall, the Portuguese health care law can be considered migrant-friendly, nonetheless, especially administrative barriers exist in the access of care by migrants (IOM, 2016).

1.2.3 Migrants' needs, access to and involvement in maternal care

Pregnant women are considered an especially vulnerable group amongst migrants (WHO, 2018a; Women Political Leaders Global Forum, 2018). Despite having entitlement to health care in the host country, their access to health care services may be limited and, as a result, they may have special needs that are unmet.

Similarly to other countries, in Portugal, various studies report worse perinatal health outcomes for migrant women when compared to native Portuguese. A study conducted in the Lisbon region found that migrant women have higher perinatal mortality and more infections during pregnancy (Machado *et al.*, 2006). A study done in Porto reports a higher

prevalence of intrapartum complications for migrant mothers (Almeida, Santos, *et al.*, 2014). Migrant women are also shown to have higher rates for some medical interventions during birth such as caesarian section (Almeida, Santos, *et al.*, 2014; Kana, Correia and Barros, 2019), which is explained to a large extent by an increased prevalence of these intervention among Brazilian women (Teixeira *et al.*, 2013). Nevertheless, a “healthy migrant effect” for immigrant women in Portugal has also been observed. A study conducted in Porto shows that migrant women have a lower risk for low birth weight and engage less in risk behaviour (e.g. smoking during pregnancy) than Portuguese women (Kana, Correia and Barros, 2019).

Consistently, studies across Portugal have shown later access and less frequent visits to maternal care by migrant women when compared to Portuguese natives (Machado *et al.*, 2006; Almeida, Caldas, *et al.*, 2014; Almeida, Santos, *et al.*, 2014; Kana, Correia and Barros, 2019). Furthermore, migrant women report facing barriers when accessing maternal care and receiving lower-quality care more often. Migrants are also found to have less access to family doctors, which may present a problem to the continuity of care (Padilla *et al.*, 2014). In addition to lack of continuity care, long waiting times and poor organization are also pointed out more often by migrants (Coutinho *et al.*, 2014). Brazilian women identify lack of access to specialists when comparing the care delivered in Portugal to that of Brazil. And greater difficulties in getting follow-up appointments (Almeida, 2013).

Some barriers to the access of high-quality maternal care might be further related to and aggravated by low socioeconomic status, as many migrants are employed in lower-paid jobs with worse working conditions (Barros and Pereira, 2009). Financial factors as barriers to access of maternal care are more often reported by women from PALOP (Padilla *et al.*, 2014). Low-income African migrant women living in the Lisbon area reported rarely attending prenatal care services (Dias, Gama and Rocha, 2010a). African women further tend to search for care in hospitals rather than health centers, due to related costs (Machado *et al.*, 2006). Low income has further been pointed out by migrant women from different backgrounds as a stressor leading to negative experiences during their maternal care (Dias, Gama and Rocha, 2010b). Another issue related to the working situation of women is their schedules being incompatible with those of health care centres. In a qualitative study, Brazilian and African immigrant women explain not being able to attend appointments unless they took time off from work. The study did not have a Portuguese comparison group, so this could also be an issue for Portuguese working women (Dias, Gama and Rocha, 2010a).

Some issues, on the other hand, are more closely related to migration status exclusively. Irregular status is reported as a barrier of access to maternal care by Brazilian women (Dias, Gama and Rocha, 2010a). Navigating the unfamiliar health care system can also be a challenge to migrant women: misinformation and unawareness of migrants' rights to maternal care exist on the part of both women and health professionals (Dias, Gama and Rocha, 2010a; Almeida, 2013).

Changing the country of usual residence can also come with a lack of social support systems in the new country, as family and friends are left behind. This has also been described by migrant mothers in Portugal (Dias, Gama and Rocha, 2010b; Almeida *et al.*, 2016). The lack of social support can exacerbate psychological problems occurring during and after pregnancy (Ibid.). A good relationship between migrant women and health professionals can act as a substitution for missing family and social support system, as pointed out by migrant women in Portugal (Coutinho *et al.*, 2014). However, they report lower satisfaction with the interpersonal aspect of care (Almeida, Santos, *et al.*, 2014; Padilla *et al.*, 2014). Brazilian and Eastern European women, in particular, talk about cultural differences in how communication between service users and health professionals unfolds in their country of origin and in Portugal (Dias, Gama and Rocha, 2010b). Some Eastern European and African women also experience language barriers during interactions with health professionals (Almeida, Casanova, *et al.*, 2013). Negative attitudes by health staff (e.g. being insensitive to migrant living circumstances and cultural stereotyping and discrimination) have been reported to lead migrants to under-use or even stop using maternal care services (Dias, Gama and Rocha, 2010a).

Although some studies focus on aspects related to involvement, there is limited evidence accounting for all dimensions of involvement by migrants in maternal care in Portugal. A study found that Brazilian women hold back from asking questions due to perceived harshness by healthcare professionals (Almeida, 2013). Similar findings were found among Eastern Europeans (Almeida, Caldas, *et al.*, 2014) who point out that some health professionals view themselves as experts and are not ready to communicate with patients and to discuss technical information or clinical procedures (Almeida, Casanova, *et al.*, 2013). However, these studies address only one of involvement's several dimensions, namely communication. This thesis aims to help fill the gap in the literature regarding migrants' involvement in maternal health care by assessing aspects of involvement related to information, communication, preferences and decision-making based on a large-scale cross-sectional study that includes both migrant and native women.

2. OBJECTIVES

Recommendations to improve maternal care for under-served populations emphasise the need to centre care on women's needs and preferences, namely by promoting their involvement in care (WHO, 2018b). However, little is known about migrant women's preferences for and actual involvement in maternal care. Research on this topic is needed because inadequate involvement may lead to the reinforcement of existing health inequalities. This thesis aims to investigate the involvement of migrant women in maternal care in Portugal from a comparative perspective. In order to do so, three specific objectives were defined:

1. To develop a measure of involvement in maternal care during childbirth considering various groups of origin;
2. To compare levels of involvement in maternal care during childbirth by migrant and native women;
3. To examine the factors associated with involvement in maternal care by migrant and native women.

3. METHODS

3.1 Study design and participants

This thesis draws on data from a large-scale cross-sectional study designed to evaluate the preparedness of Portuguese hospitals to provide perinatal care to migrant women from different cultural backgrounds and the satisfaction of women with the care they received, under the scope of a research named baMBINO. The research was conducted at the national level and aimed to include all public maternity units in mainland Portugal, given that 86% of all childbirths occur in public services⁴. Out of the 39 maternity units contacted, 32 (82%) accepted to participate in the study.

The recruitment of participants at the maternity units took place between April 2017 and December 2018. All migrant women aged 18 or older delivering a live birth were eligible participants. In line with the International Organization for Migration's (IOM), migrant women were defined as women born in a foreign country. For each migrant woman invited, one native woman with the same delivery date and a similar birth outcome was approached and asked to take part in the study (matching by a factor of 1:1). Recruitment was carried out by health care professionals at the maternity units during the women's admission for delivery. Potential participants were provided with an information sheet addressing the study objectives and any arising questions or doubts were clarified. The information sheet was available in several languages, including for example Arabic, Russian, German. In total, 5703 women were invited to participate, of whom 257 (4.5%) refused to take part in the study.

One to three months after recruitment at the maternal units, women were contacted by telephone to collect data on their experience with maternal care through a questionnaire. At this point 159 women refused the interview, 173 did not complete the interview and 2251 women were unable to be contacted, partly due to missing or inactive contact information. Therefore, 2863 participants (50.2% of the initial sample) are included in the present analysis.

⁴ 13,2% of childbirths take part in private care and 1,1% at home.

3.2 Data collection and analysis

Information was collected using the validated Migrant Friendly Maternity Care Questionnaire (MFMCQ) developed by the Reproductive Outcomes and Migration (ROAM) international research collaboration to measure a wide range of maternity and migration related topics. The questionnaire was administered by computer assisted telephone interviews, that were conducted in Portuguese, PALOP's Creole languages, Russian, Ukraine, Romanian, Bulgarian, English, Spanish, French, German, Mandarin, Nepali, Hindi, Lingala, Arabic, Urdu, Fula and Tigrinya.

The questionnaire collected information on sociodemographic characteristics, obstetric variables, medical complications and the perception of women about the information received, communication with professionals, their preferences, and involvement in decision-making during childbirth.

Women were asked for their country of birth, the country of birth of their parents and the number of years they lived in Portugal. The migration background of women was defined on the basis of the country of birth, parental country of birth and the time living in Portugal. Using those variables, women were divided into five categories according to origin "Portugal", "Brazil", "PALOP", "Eastern Europe" and "Other". All women born in Portugal and all women with at least one parent born in Portugal and who moved to Portugal before turning 18 were considered Portuguese. The other women were grouped together by origin into four categories: Portuguese-speaking African countries (PALOP), Brazil, Eastern Europe and Other. These are the most commonly used categories to group migrants who have similar backgrounds within migration studies in Portugal. PALOP include African countries that were Portuguese colonies namely, Angola, Cape Verde, Guinea-Bissau, Mozambique and São Tomé and Príncipe. Eastern Europe includes countries that are grouped according to a shared historic and sociocultural background within the Ex-Soviet Union region namely, Belarus, Bulgaria, Czech Republic, Hungary, Poland, Moldova, Romania, Russia, Slovakia, Ukraine, Lithuania, Latvia, Uzbekistan, Kazakhstan, Estonia, Macedonia and Croatia. Brazilians are the largest immigrant group in Portugal and a sizable group in our sample. Therefore, Brazil was considered a group on its own which is composed by women born in Brazil. Given the small size of other migrant groups, they were grouped in a category designated "Other".

Sociodemographic and economic variables included age, education, household income and marital status. Age was measured by the date of birth of the respondent and subsequently calculated with the date of the interview. Age was categorized into five age ranges: 18-24; 25-29; 30-34; 35-40; and, >40. Education was measured by the highest degree of education

completed and categorized as “Basic or less” if women reported concluding primary school (until 4th grade) or basic education (until 5th grade), “Secondary” if secondary school or diploma (until 12th grade) was reported and “University”, if they reported having an undergraduate degree/postsecondary diploma (e.g. bachelor) or a graduate diploma (e.g. master’s degree). Income was measured by pre-tax household income and reported in five categories ranging from less than 500 to more than 3000€. The last two categories were summarized into one for analysis leading to the categories “>500€”, “500-1000€”, “1001-2000€” and “<2000€”. Marital status was categorized into “married”, if women reported to be married, “partnership” if they reported to be in a consensual union and “single” if they reported to be widowed, separated, divorced or single.

Parity was measured by the woman reporting the total number of pregnancies. Women that reported one pregnancy were categorized as “primiparous” and women that reported two or more pregnancies were categorized as “multiparous”. Medical complications during labour and birth were self-reported by the woman in a yes/no question format.

Women were asked about their perception on the information received, the communication process with health professionals, if they felt that their preferences were taken into account and about their perceived involvement in decision-making during the childbirth period. The information dimension included four items related to labour and birth, and the women were asked in a yes/no question if they had sufficient information on the signs of beginning labour, medication, what to expect during labour and birth and non-medical pain therapy before their labour and birth. The last question was related to their understanding of the information received by healthcare professionals. This was answered on a 4-point Likert scale from never to always. To analyse communication women were given several statements on important points of the patient-professional communication, that they rated again on a 4-point Likert scale from never to always. The statements revolved around the health professional asking women for questions, keeping women informed about what was happening, spending enough time providing information, taking women’s worries seriously, being encouraging and reassuring and if the women felt comfortable asking about things she did not understand. In order to evaluate if women were asked for their preferences, first it was assessed if health professionals were concerned about the woman’s general preferences or customs they wanted to follow during labour and birth and the immediate postpartum period. Additionally, it was questioned if health professionals inquired on specific preferences, like pain control, position and companion. Women were asked if they were allowed to have their choice of family member or support people with them during labour, if the health professional asked them how they wanted to manage their pain during labour and birth and if they were allowed to move around or choose a comfortable position

during labour. Lastly, with the purpose of evaluating the perceived involvement in decision-making women were asked if they were not allowed to follow any preferences they had, if they were asked to do something unwanted and finally how often decisions were made without their wishes being taken into consideration. The variables of involvement were grouped according to the four dimensions derived from our working definition that is “Information”, “Communication”, “Preferences” and “Decision-making”.

3.3 Statistical analysis

The Chi-square test was used to compare proportions, while analysis of variance (ANOVA) was used to compare continuous variables between groups.

Principal Component Analysis (PCA) was conducted for the entire sample and for each group separately to create a score for each mentioned dimension of involvement and to assess in which natural dimensions the data falls in. The number of dimensions was identified by Cattell’s scree plot. The corresponding items were identified by looking at the factor loadings, with cutoff set at 0.3 or above, as recommended by Tabachnick & Fidell (2001). Reliability of the scores was tested by the standardized Cronbach’s Alpha, aiming for a value of 0.7 (Nunnally, 1978).

To evaluate if observed differences between origin groups are due to real differences or measurement error (for example, due to a different interpretation of questions done in different a language), measurement invariance was tested using Confirmatory Factor Analysis models. Estimations were made for four models of invariance: configural, weak, strong and strict. The configural model explores if the items (variables) load in the same dimensions across groups. In the weak model, the item loadings are set to be the same across groups, in addition to this in the strong model intercepts are constrained to equivalence. Lastly, in the strict model residual invariances are set as equal (Putnick, Diane and Bornstein, Mark, 2016). Different model fit indices were used to reduce limitations of each individual measure. To compare models, several fit indices were chosen, to minimize the shortcomings of each. Model fit is suggested to be good for lower Bayesian Information Criterion (BIC) (Schwarz, 1978), a Root Mean Squared Error of Approximation (RMSEA) of 0.06 or lower and Comparative Fit Index (CIF) of 0.95 or above (Hu and Bentler, 1999). For the configural and strong invariance model, plots are shown.

Using this model, a t-score was calculated, which ranges from 0 to 100, with 10 points corresponding to one standard deviation. This translates to one point being 0.1 standard deviations of the variable. The mean score and 95% confidence interval of the score is

presented for each dimension and for each origin group. The group “Other” was excluded from the analysis of the score, as this group is too heterogeneous to make inferences and for the invariance analysis.

Linear regression models were used to determine the influence of the factors “age”, “education”, “income”, “marital status”, “parity” and “medical complications” on each dimension of involvement in each origin group. Significance of association and interaction was assessed using analysis of variance, with 95% confidence intervals.

As we found interactions of education and origin on the score in most dimensions, the results of the scores are shown by women’s education level. The means were further adjusted for the possible confounding variables: age, marital status, parity, medical complication and the interaction between origin and education.

Statistical Analysis was conducted using SPSS® for the descriptive analysis and the “stats” package of the R software®.

3.4 Ethical approval

Ethical approval from the Ethics Committees of all participating maternity units was obtained before the beginning of the study, as required by Portuguese law. Written informed consent after the Helsinki Declaration was provided by all participating women after they were thoroughly informed about the study and offered the opportunity to clarify any doubts. Furthermore, they were informed that unwillingness to participate had no consequence to them or their care.

4. RESULTS

4.1 Characteristics of study participants

The characteristics of the study sample are shown in

Table 1. Significant differences were found in sociodemographic characteristics by origin. Brazilian women had the highest median age (Median=33) and women from PALOP the lowest (Median=30). Eastern Europeans had the highest level of education (53.7% university education). Household income was highest for Portuguese women and lowest for women from PALOP. Eastern European women were more frequently married (73.7% were married and 9.3% were single) and women from PALOP more likely to be single (26.9% were married and 42.2%, were single). The highest proportion of primiparous women was found amongst Portuguese women (40.8%) and the highest proportion of multiparous women amongst women from PALOP (73.6%). Portuguese women had the highest proportion of medical complications during pregnancy (41.2%), while women from countries classified as Other had the lowest (34%).

Table 1: Sociodemographic and obstetric characteristics by origin (N=2,863).

	Portugal (n=1430)	Brazil (n=322)	PALOP (n=702)	Eastern Europe (n=205)	Other (n=204)	p-value
%						
Age (years)						
18-24	10.9	12.5	19.3	15.1	10.4	< 0.001
25-29	23.5	19.6	30.5	27.3	22.9	
30-34	32.7	28.7	26.2	32.7	35.3	
35-40	25.5	30.2	17.6	17.6	23.9	
>40	7.4	9.0	6.3	7.3	7.5	
Median age (IQR) (Missing n=15)	32 (8)	33 (9)	30 (9)	31(8)	32 (7)	< 0.001
Education						
Basic or less	25.3	23.6	38.3	21.0	16.7	< 0.001
Secondary	34.3	51.6	39.2	25.4	33.8	
University	40.3	24.8	22.5	53.7	49.3	
Household Income (€)						
>500	6.2	6.6	29.3	7.4	12.1	< 0.001
501-1000	38.4	56.1	56.0	44.2	51.1	
1001-2000	40.1	29.4	12.4	36.8	27.4	
<2000 (Missing n=158)	15.3	7.9	2.3	11.6	9.5	
Marital Status						
Married	40.2	56.8	26.9	73.7	71.1	< 0.001
Partnership	36.6	21.1	30.9	17.1	17.2	
Single	23.1	22.0	42.2	9.3	11.8	
Parity						
Primiparous	40.8	37.0	26.4	35.6	40.7	< 0.001
Multiparous	59.2	63.0	73.6	64.4	59.3	
Medical Complications						
No	57.9	60.9	64.2	60.5	66.0	0.032
Yes (Missing n=17)	41.2	39.1	35.8	39.5	34.0	

4.2 Development of the measure of involvement

4.2.1 Description of the data collected

Table 2 shows that there are significant differences regarding the level of information provided according to women's origin. Migrant women report having received less information than natives on all topics measured, except for medication where Portuguese and Brazilian women report similar levels of information. Among migrant women, Brazilians score the closest to natives. 20,3% Eastern European women report not having received information about signals of beginning of labour. Women from the group "Other" have the lowest scores in all the other levels of information measured, with 29% reporting not having received information about medication, 31,2% not knowing what to expect during labour and birth and 54% not having been informed about non-medical pain control. The biggest information gaps identified concern these latter two aspects of information: approximately half of Eastern European and PALOP women report not having received information about non-medical pain control and one-fourth report not knowing what to expect during labour and birth. While 94.7% of Portuguese women reported to always understood the information provided, the proportion was much lower among women in the group Other (74.4%) and among Eastern Europeans (82.8%). When looking at the mean scores found in Table 16 in the appendix for understanding information, however, Eastern European scored the worst, followed by PALOP and only then other countries.

Table 2: Level of involvement concerning information by origin.

	Portugal	Brazil	PALOP	Eastern Europe	Other	p-value
%						
Signals beginning labour						
No	8.9	12.5	17.3	20.3	11.9	< 0.001
Yes	91.1	87.5	82.7	79.7	88.1	
(Missing n=17)						
Medication						
No	9.8	9.6	14.3	15.1	29.0	< 0.001
Yes	90.2	90.4	85.7	84.9	71.0	
(Missing n=26)						
Expectations labour and birth						
No	14.4	20.0	26.2	24.9	31.2	< 0.001
Yes	85.6	80.0	73.8	75.1	68.8	
(Missing n=25)						
Non-medical pain control						
No	31.0	42.2	50.0	46.8	54.0	< 0.001
Yes	69.0	57.8	50.0	53.2	46.0	
(Missing n=21)						
Understand information						
Never	0.8	0.6	1.3	1.0	3.9	< 0.001
Rarely	0.5	0.9	0.1	3.0	2.5	
Sometimes	4.0	6.9	11.3	13.3	19.2	
Always	94.7	91.6	87.2	82.8	74.4	
(Missing n=19)						

Table 3 shows significant differences in the communication variables according to women's origin. Portuguese native women scored higher than migrant women in all items of communication, except regarding being offered the opportunity to ask questions by health professionals in which Eastern Europeans scored slightly higher (63.9%) than Portuguese natives (61.2%). This item of communication was the least ensured among all women groups: only 52.2% Brazilians reported always being offered the opportunity to ask questions. Women in the group Other (67.5%) and Eastern Europeans (70.4%) reported less frequently always being kept informed about what was happening when compared to Portuguese women (81.7%). While most Portuguese natives felt comfortable asking questions (91.1%) this proportion was lower among all migrant groups, dropping to 77% among women from the group Other. Most women in all groups reported that their worries were taken seriously and that health professionals were encouraging and reassuring.

Table 3: Level of involvement concerning communication by origin.

	Portugal	Brazil	PALOP	Eastern Europe	Other	p-value
%						
Kept informed						
Never	1.5	4.1	4.9	5.5	4.9	< 0.001
Rarely	2.0	3.8	3.9	5.0	7.4	
Sometimes	14.9	15.9	16.4	19.1	20.2	
Always	81.7	76.3	74.8	70.4	67.5	
(Missing n=34)						
Enough explanation						
Never	2.0	5.9	3.2	5.6	5.9	< 0.001
Rarely	3.8	4.0	5.9	5.6	5.9	
Sometimes	18.2	18.7	21.9	16.2	18.1	
Always	76.0	71.3	69.1	72.7	70.1	
(Missing n=27)						
Asked for questions						
Never	3.8	11.8	14.6	12.2	7.9	< 0.001
Rarely	5.0	7.1	6.7	5.4	8.9	
Sometimes	30.0	28.9	26.2	18.5	24.1	
Always	61.2	52.2	52.4	63.9	59.1	
(Missing n=6)						
Comfortable asking questions						
Never	0.9	5.0	2.9	2.0	3.4	< 0.001
Rarely	2.1	3.1	1.9	2.0	4.9	
Sometimes	5.9	10.6	7.3	13.3	14.7	
Always	91.1	81.3	87.9	82.7	77.0	
(Missing n=37)						
Worries taken seriously						
Never	1.5	4.7	2.7	5.0	3.4	0.009
Rarely	2.1	2.8	3.2	3.5	4.4	
Sometimes	14.9	15.0	16.9	12.6	13.8	
Always	81.5	77.6	77.2	78.9	78.3	
(Missing n=31)						
Encouraging and reassuring						
Never	1.5	4.4	2.7	6.9	2.5	< 0.001
Rarely	2.3	3.1	1.7	1.5	3.4	
Sometimes	16.1	15.6	14.6	11.9	15.3	
Always	80.1	76.9	80.9	79.7	78.8	
(Missing n=24)						

Table 4 shows that few women were asked about their general preferences during labour and birth (12.2% among Portuguese natives and only 6.9% from the group Other), and even less so regarding preferences on care after birth. Concerning specific preferences for pain control, all migrant groups except Brazilians scored higher than Portuguese natives (44.7%). Nevertheless, only about half the women were asked how they would like to control pain, with Eastern Europeans (57.8%) being offered to choose their preference more often. Migrants were less often allowed to choose a position during birth than Portuguese natives (49%), with women from the PALOP being least often allowed to choose their preferences (38.1%). This was more justified by medical reasons for women from the group Other and Eastern Europeans (28.5% and 27.7%, respectively). Almost all women are allowed to have their companion of choice present during labour and birth.

Table 4: Level of involvement concerning preferences by origin.

	Portugal	Brazil	PALOP	Eastern Europe	Other	p-value
%						
Preferences intrapartum						
No	87.8	92.2	91.7	88.8	93.1	0.009
Yes	12.2	7.8	8.3	11.2	6.9	
(Missing n= 29)						
Preferences postpartum						
No	93.8	95.3	96.1	93.5	91.5	0.079
Yes	6.2	4.7	3.9	6.5	8.5	
(Missing n=48)						
Preference pain control						
No	55.3	58.7	48.1	42.2	43.7	< 0.001
Yes	44.7	41.3	51.9	57.8	56.3	
(Missing n= 608)						
Allowed choose position						
Yes, always	49.0	48.4	38.1	42.8	39.3	< 0.001
Yes, sometimes	17.7	13.2	18.6	13.2	23.8	
Yes, rarely	3.5	2.3	5.5	5.7	4.8	
No, medical reason	18.0	20.5	20.3	27.7	28.5	
No, don't know why	11.8	15.5	17.5	10.7	13.7	
(Missing n=633)						
Allowed choose companion						
No	4.1	2.1	7.0	3.2	6.2	0.005
Sometimes	1.3	1.4	1.8	2.7	2.8	
Yes	94.6	94.4	91.2	95.1	91.0	
(Missing n=353)						

Table 5 shows that concerning involvement in decision-making, women reported that they were allowed to follow their preferences most of the time, with no significant differences found according to origin. Likewise, few women were asked to do something unwanted, although Eastern European and Brazilian women were asked for this significantly more often (9.8% and 9.3%, respectively). Finally, most women reported that their wishes were taken into account during decision-making. With the exception of women from PALOP, all

migrant groups reported having their wishes considered significantly less than Portuguese natives.

Table 5: Level of involvement concerning decision-making by origin.

	Portugal	Brazil	PALOP	Eastern Europe	Other	
%						p-value
Preferences not allowed						
No	96.6	95.3	97.4	96.1	94.5	0.245
Yes	3.4	4.7	2.6	3.9	5.5	
(Missing n=29)						
Asked do something unwanted						
No	94.6	90.7	94.1	90.2	93.1	0.023
Yes	5.4	9.3	5.9	9.8	6.9	
(Missing n=15)						
Decisions without wishes considered						
Always	2.2	6.3	2.9	5.1	6.5	< 0.001
Sometimes	7.1	6	5.9	9.1	12	
Rarely	3.7	5.6	3.7	3.5	2	
Never	86.9	82.1	87.5	82.3	79.5	
(Missing n=38)						

4.2.2 Principal Component Analysis

Looking at the eigenvalues and Cattel's scree test to determine the natural dimensions of the described data, the items fall into three to four dimensions. On grounds of the theoretical model having four dimensions, it was chosen to stick to this number. According to the factor loadings shown in Table 6 and Table 7, the distribution of the variables was almost the same across the dimensions, as in the theoretical model. The items "Understand information", "Asked for questions", "Preferences pain control", "Allowed choose position" and "Allowed choose companion" were removed because they cross-loaded or did not load in any of the dimension. The country group "Other" was removed from this analysis because of its heterogeneity and following problems for variance analysis.

The variable "Decisions without wishes considered" cross-loaded in Dimension 2 (Communication) and Dimension 4 (Decision-making) in the model with all origin groups. For Eastern Europe and Brazil benchmark of 0.3 was not reached in the fourth dimension, so it should have been grouped with the communication dimension or deleted. It was however decided to keep the item in the decision-making dimension, as it was the only question specifically directed at decision-making of the concept of involvement.

Table 6: Loadings of the Principal Component Analysis (the entire sample).

	Dimension 1	Dimension 2	Dimension 3	Dimension 4
Signals beginning labour	0.09	0.78	-0.02	-0.02
Medication	0.07	0.62	-0.02	0.06
Expectations labour and birth	0.14	0.79	0.01	0.00
Non-medical pain control	0.05	0.62	0.12	-0.03
Kept Informed	0.78	0.08	0.03	0.03
Enough explanation	0.83	0.12	0.06	0.02
Comfortable asking questions	0.64	0.10	-0.02	0.13
Worries taken serious	0.77	0.08	0.06	0.08
Encouraging and reassuring	0.81	0.07	0.05	0.07
Preferences intrapartum	0.07	0.04	0.81	0.01
Preferences postpartum	0.05	0.04	0.81	-0.01
Preferences not allowed	0.08	0.02	-0.02	0.73
Asked do something unwanted	0.09	-0.02	0.03	0.73
Decisions without wishes considered	0.49	0.05	0.07	0.44

Table 7: Loadings of the Principal Component Analysis by origin.

	Dimension 1 (Communication)				Dimension 2 (Information)				Dimension 3 (Preferences)				Dimension 4 (Decision-making)			
	PT	BR	PALOP	EE	PT	BR	PALOP	EE	PT	BR	PALOP	EE	PT	BR	PALOP	EE
Signals beginning labour	0.07	0.06	0.12	0.05	0.76	0.84	0.79	0.74	0.03	-0.05	-0.07	-0.03	0.00	0.02	-0.02	-0.07
Medication	0.07	0.19	-0.01	0.22	0.58	0.54	0.69	0.57	-0.04	0.02	0.01	0.04	-0.01	0.16	0.14	-0.15
Expectations labour and birth	0.15	0.21	0.08	0.10	0.77	0.83	0.81	0.72	0.01	0.08	-0.04	-0.02	0.01	0.07	-0.04	0.04
Non-medical pain control	0.02	0.17	0.06	-0.13	0.61	0.48	0.61	0.71	0.14	0.16	0.07	-0.02	0.02	-0.29	-0.05	0.08
Kept informed	0.78	0.81	0.78	0.77	0.04	0.22	0.04	0.12	0.03	0.02	0.04	0.09	0.06	0.04	0.07	-0.08
Enough explanation	0.84	0.84	0.81	0.84	0.15	0.19	0.07	0.06	0.06	0.03	0.06	0.07	0.05	-0.06	0.06	0.05
Comfortable asking questions	0.64	0.70	0.53	0.79	0.09	0.15	0.07	0.04	0.00	0.04	-0.13	-0.03	0.08	0.21	0.22	0.03
Worries taken serious	0.81	0.81	0.75	0.53	0.04	0.07	0.11	0.30	0.05	0.06	0.08	0.19	0.12	0.14	0.02	0.17
Encouraging and reassuring	0.83	0.85	0.77	0.70	0.09	0.16	0.03	0.03	0.08	0.01	0.04	-0.09	0.10	0.02	0.11	0.07
Preferences intrapartum	0.09	0.05	0.03	0.02	0.04	0.01	0.02	0.05	0.82	0.80	0.78	0.78	0.00	0.09	0.03	0.09
Preferences postpartum	0.05	0.07	0.04	0.03	0.06	0.09	-0.03	-0.08	0.81	0.78	0.79	0.80	-0.01	-0.12	0.01	-0.05
Preferences not allowed	0.08	0.15	-0.05	0.10	-0.03	0.16	-0.09	-0.07	-0.03	0.20	0.07	-0.05	0.71	0.70	0.76	0.80
Asked do something unwanted	0.04	0.18	0.15	0.08	-0.01	-0.04	0.07	0.01	0.00	-0.21	-0.07	0.08	0.77	0.69	0.54	0.75
Decision without wishes considered	0.41	0.65	0.37	0.69	0.09	0.09	0.01	-0.07	0.06	0.10	0.09	-0.01	0.51	0.20	0.58	0.13

Table 8 shows the test of reliability for the model with all groups of origin. The reliability for the separate origin groups can be found in the appendix in Table 17, 18, 19 and 20. As can be seen, the standardized Alpha only reaches the set threshold of 0.7 for all countries in the second dimension (Communication). For Dimension 1, only PALOP has a standardized alpha over 0.7. the lowest is for Portugal with 0.63, this value cannot be improved by dropping one of the items. Only for Brazil and improvement from 0.66 to 0.68 could be made by deleting item 4. All countries combined have a standardized alpha of 0.67 which leaves 33% of variance due to error of measurement. The last two items have a low standardized alpha. Lowest for PALOP (0.42 and 0.36, respectively) and highest for Portugal (0.52 and 0.45, respectively). The alpha cannot be improved by deleting any item, this leaves a high error of measurement of 51% in Dimension 3 for all countries and 58% for the fourth dimension.

Table 8: Reliability for model with all origins (Portugal, Brazil, PALOP, Eastern Europe).

	n	mean	sd	r drop	alpha std
Dimension 1 (Information)					
Signals beginning labour	2645	0.88	0.33	0.52	0.56
Medications	2637	0.89	0.32	0.36	0.66
Expectations labour and birth	2636	0.81	0.39	0.55	0.53
Non-medical pain control	2642	0.61	0.49	0.37	0.66
Total		0.8	0.27		0.67
Dimension 2 (Communication)					
Kept informed	2626	2.7	0.67	0.65	0.80
Enough explanation	2632	2.6	0.71	0.73	0.78
Comfortable asking questions	2622	2.8	0.56	0.51	0.84
Worries taken seriously	2629	2.7	0.63	0.64	0.81
Encouraging and reassuring	2636	2.7	0.63	0.69	0.79
Total		2.7	0.51		0.84
Dimension 3 (Preferences)					
Preferences intrapartum	2632	0.106	0.31	0.33	0.33
Preferences postpartum	2614	0.054	0.23	0.33	0.33
Total		0.082	0.23		0.49
Dimension 4 (Decision-making)					
Preferences not allowed	2633	0.034	0.18	0.23	0.36
Asked do smth unwanted	2646	0.063	0.24	0.24	0.33
Decision w/o wishes considered	2625	0.269	0.72	0.27	0.30
Total		0.12	0.29		0.42

Legend: sd=standard deviation

As shown in Table 9, the BIC criteria indicates strong invariance as the best model fit, meaning that factor structure, loadings and intercepts are equal across countries. This model also shows a CFI above 0.95 a RMSEA below 0.6 and therefore reaches the threshold set for each criterion. A strict model fit is not achieved, meaning that residual variance is not similar across country groups. A strong model fit is deemed sufficient by most authors (Vandenberg and Lance, 2000).

Table 9: Confirmatory Factory Analysis Fit Indices

Model	AIC	BIC	X ²	ΔX ²	df	Δdf	CFI	ΔCFI	RMSEA	ΔRMSEA
Config	28134	29248	466.52	---	284	---	0.975	---	0.032	--
Weak	28191	29130	582.72	116.19	314	30	0.964	0.011	0.037	0.005
Strong	28217	28982	668.68	85.96	344	30	0.956	0.008	0.039	0.002
Strict	28934	29456	1470.07	801.39	386	42	0.853	0.103	0.068	0.029

Legend: AIC=Akaike information criterion, BIC=Bayesian information criterion, df=degrees of freedom, CFI=Comparative fit index, RMSEA=Root mean square error of approximation

The plots of the configural models for each country can be found in Figure 2Figure 3, Figure 4 and Figure 5 in the appendix. Figure 1 shows the plot for the strong model, where it is assumed that all variables load in the same dimensions, have similar loadings and similar intercepts. It can be seen, that factor loadings reach our set benchmark of 0.3, therefore the model was used to calculate scores for each single dimension of involvement.

1

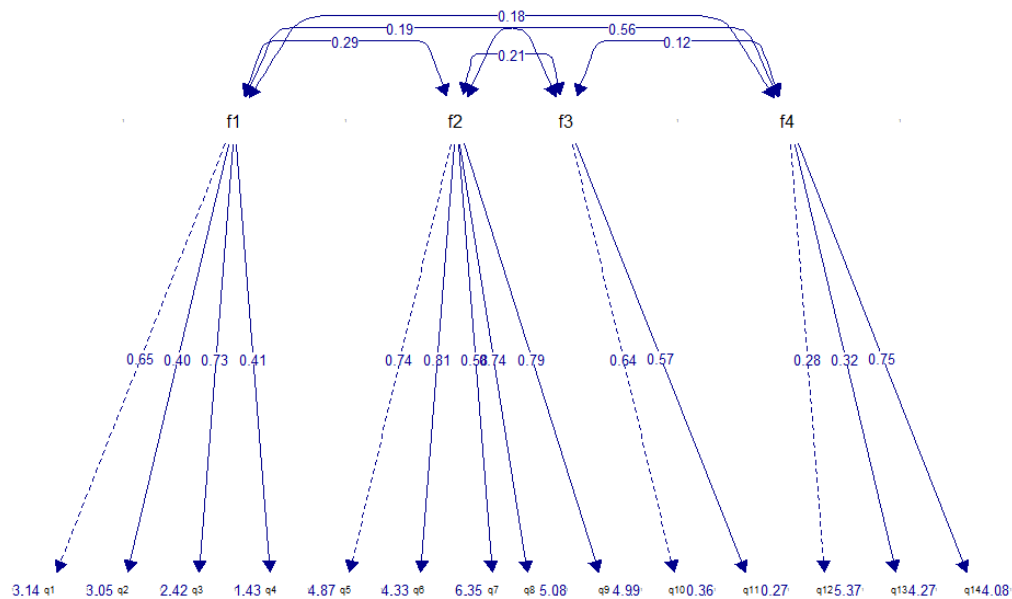


Figure 1: Plot Strong Model

4.3 Involvement in maternal care by migrants and natives

The resulting scores for each dimension of involvement in each origin group are displayed in Table 10. It shows, that there are significant differences between origins for each dimension of involvement. The biggest disparities exist in the information dimension, where all migrant origin groups report lower levels of information compared

to Portuguese native women. Migrant women from all origins also experience significant worse communication with healthcare professionals than Portuguese during maternal care. When it comes to women being asked on their preferences, there is a small but significant difference in the mean score between origin groups. The perceived involvement in decision-making is similar for women from PALOP and from Portugal with both having a mean score slightly over 50 and significantly worse for Eastern European and Brazilian women, with both scoring slightly over 48. In general, it can be said, that migrant women are less involved in their maternal care.

Table 10: Mean (95% Confidence Intervals) of involvement levels according to dimension and origin

	Involvement levels			
	Mean (95% CI)			
	Information	Communication	Preferences	Decision-making
Portugal	51.5 (51.0, 52.0)	50.2 (50.4, 51.5)	50.5 (50.0, 51.0)	50.3 (49.8, 50.8)
Brazil	49.8 (48.7, 50.9)	48.2 (47.1, 49.3)	49.4 (48.3, 50.5)	48.5 (47.4, 49.6)
PALOP	47.7 (46.9, 48.4)	49.3 (48.5, 50.0)	49.1 (48.4, 49.9)	50.5 (49.8, 51.3)
Eastern Europe	47.7 (46.3, 49.1)	48.6 (47.2, 50.4)	50.4 (49.1, 51.9)	48.3 (46.9, 49.7)
<i>p-value*</i>	<0.001	<0.001	0.015	0.001

*ANOVA

When looking at the possible factors associated with levels of involvement of migrants in maternal care in Table 11, 12, 13 and 14 we can see, that their effects differ according to dimension and origin. The association of socioeconomics, parity and medical complications with information, communication, preferences, and decision-making according to each origin group are shown in Table 11 shows, that an increase in age, level of education and household income was significantly associated with increasing levels of information among Portuguese women, but these associations were not observed in the migrant groups of women. Marital status, parity, and medical complications were not significantly associated with levels of information among natives and migrant women. However, a significant interaction was found for education. While a significant positive correlation between education and levels of information can be observed for Portuguese (between lowest and higher education levels) and Eastern European (between lowest and highest education level) women, a negative effect is observed for Brazilian (between lowest and highest) women, and no effect is observed for PALOP women.

Table 11: Linear regression coefficients (B (95% CI)) of women's socioeconomic and obstetric characteristics with involvement levels concerning information by origin

INFORMATION					
B (95% CI)					
	Portugal	Brazil	PALOP	East. Eur.	p-value interaction
Age	0.11 (0.03, 0.20)	0.03 (-0.15, 0.21)	-0.040 (-0.19, 0.10)	-0.06 (-0.33, 0.21)	0.212
Education					
Low	Ref	Ref	Ref	Ref	0.007
Intermediate	1.93 (0.73, 3.13)	-0.71 (-3.39, 1.97)	1.05 (-0.89, 2.99)	2.91 (-1.59, 7.41)	
High	2.56 (1.40, 3.72)	-2.97 (-6.08, 0.13)	0.20 (-2.07, 2.47)	5.42 (1.50, 9.34)	
Income (Euro)					
<500	Ref	Ref	Ref	Ref	0.115
501-1000	2.66 (0.64, 4.68)	-1.64 (-6.23, 2.95)	0.06 (-1.99, 2.11)	-4.67 (-11.10, 1.76)	
1001-2000	3.55 (1.54, 5.56)	-1.10 (-5.91, 3.71)	1.40 (-1.62, 4.42)	-5.21 (-11.73, 1.31)	
>2000	3.81 (1.59, 6.03)	-4.42 (-10.30, 1.46)	-0.85 (-6.90, 5.21)	-3.35 (-10.94, 4.24)	
Marital Status					
Married	Ref	Ref	Ref	Ref	0.492
Partnership	-0.37 (-1.42, 0.68)	1.19 (-1.59, 3.96)	1.55 (-0.69, 3.74)	-0.40 (-4.64, 3.83)	
Single	-0.76 (-1.97, 0.44)	0.47 (-2.26, 3.20)	-0.91 (-3.01, 1.19)	-1.63 (-7.05, 3.79)	
Parity					
Primiparous	Ref	Ref	Ref	Ref	0.643
Multiparous	-0.03 (-0.97, 0.90)	0.31 (-1.94, 2.56)	1.12 (-0.81, 3.05)	-0.63 (-3.90, 2.65)	
Medical Complications					
No	Ref	Ref	Ref	Ref	0.147
Yes	-0.36 (-1.49, 0.77)	-2.06 (-4.70, 0.59)	-2.96 (-5.19, -0.73)	-0.81 (-4.27, 2.65)	

Table 12 shows there is a significant interaction with origin for education and income in the communication dimension. Education has varying effects depending on the origin of the woman. The only significant association can be observed among Brazilian women, with higher educated women perceiving communication worse than lower educated women from the same origin (B -6.02, CI -10.06; -1.90). For women from all other origins no significant association of education can be observed. High income only has a significant positive effect on communication for Portuguese women. A positive, but non-significant tendency can also be observed for PALOP women in the high-income group. For Brazilian and Eastern European women those with high income showed low levels of communication, although the association was not statistically significant. Medical complications increased levels of communication in all groups of women. Age, marital status and parity were not significantly associated with communication in any origin group.

Table 12: Linear regression coefficients (B(95%CI)) of women's socioeconomic and obstetric characteristics with involvement levels concerning communication by origin

COMMUNICATION					
B (95% CI)					
	Portugal	Brazil	PALOP	East. Eur.	p-value interaction
Age	0.07 (-0.01, 0.15)	0.10 (-0.14, 0.34)	0.03 (-0.10, 0.16)	0.08 (-0.21, 0.37)	0.921
Education					
Low	Ref	Ref	Ref	Ref	<0.001
Intermediate	1.01 (-0.20, 2.21)	-0.45 (-3.93, 3.02)	-0.55 (-2.29, 1.20)	0.29 (-4.52, 5.09)	
High	0.75 (-0.42, 1.92)	-6.02 (-10.06, -1.90)	0.78 (-1.26, 2.82)	-1.36 (-5.48, 2.76)	
Income (Euro)					
<500	Ref	Ref	Ref	Ref	0.001
501-1000	2.44 (0.48, 4.40)	-0.79 (-6.72, 5.15)	-2.47 (-4.32, -0.62)	-1.96 (-8.62, 4.70)	
1001-2000	2.03 (0.079, 3.99)	-1.40 (-7.62, 4.81)	-1.93 (-4.66, 0.80)	-0.94 (-7.72, 5.83)	
>2000	2.60 (0.444, 4.76)	-5.82 (-13.42, 1.78)	2.98 (-2.49, 8.45)	-6.70 (-14.55, 1.14)	
Marital Status					
Married	Ref	Ref	Ref	Ref	0.993
Partnership	-0.42 (-1.47, 0.63)	0.48 (-3.16, 4.13)	-0.24 (-2.26, 1.78)	0.23 (-4.15, 4.61)	
Single	0.20 (-1.0, 1.40)	0.41 (-3.18, 4.00)	-0.14 (-2.03, 1.76)	-0.86 (-6.32, 4.61)	
Parity					
Primiparous	Ref	Ref	Ref	Ref	0.355
Multiparous	0.55 (-0.39, 1.48)	1.65 (-1.29, 4.60)	0.38 (-1.37, 2.12)	3.05 (-0.28, 6.39)	
Med. Compl.					
No	Ref	Ref	Ref	Ref	0.171
Yes	-4.30 (-5.41, -3.19)	-6.25 (-9.65, -2.85)	-2.61 (-4.61, -0.61)	-3.90 (-7.44, -0.31)	

Table 13 shows that age, education, income, parity and the presence of medical complications were not significantly associated with women perception of being asked about preferences by health professionals. There is a significant interaction between marital status and origin of the women. For Portuguese women marital status has no significant influence on health professional eliciting their preferences but married PALOP and Eastern European women are asked more often for their preferences than single women or women in a partnership from the same origin. Brazilian women, on the other hand, were asked more often if they are single compared to married women.

Table 13: Linear regression coefficients (B(95%CI)) of women's socioeconomic and obstetric characteristics with Preferences dimension stratified by country of origin

PREFERENCES					
B (95% CI)					
	Portugal	Brazil	PALOP	East. Eur.	p-value interaction
Age	-0.10 (-0.20, 0.01)	-0.04 (-0.21, 0.13)	0.05 (-0.06, 0.15)	-0.05 (-0.31, 0.21)	0.345
Education					
Low	Ref	Ref	Ref	Ref	0.929
Intermediate	-0.13 (-1.60, 1.34)	0.17 (-2.36, 2.69)	-0.73 (-2.19, 0.73)	1.27 (-3.03, 5.57)	
High	0.29 (-1.14, 1.72)	0.02 (-2.89, 2.93)	-0.64 (-2.35, 1.06)	-0.24 (-3.99, 3.51)	
Income (Euro)					
<500	Ref	Ref	Ref	Ref	0.548
501-1000	-0.98 (-3.45, 1.49)	-2.45 (-6.77, 1.88)	-0.75 (-2.30, 0.81)	5.93 (-0.12, 11.98)	
1001-2000	-1.63 (-4.10, 0.84)	-2.12 (-6.64, 2.40)	-1.85 (-4.18, 0.48)	2.94 (-3.19, 9.06)	
>2000	-2.07 (-4.81, 0.67)	-1.04 (-6.52, 4.44)	-1.60 (-6.21, 3.02)	3.07 (-4.07, 10.22)	
Marital Status					
Married	Ref	Ref	Ref	Ref	0.001
Partnership	0.76 (-0.53, 2.05)	-0.33 (-2.90, 2.23)	-3.31 (-4.98, -1.65)	-4.14 (-8.01, -0.27)	
Single	0.92 (-0.55, 2.38)	2.71 (0.20, 5.23)	-2.45 (-4.02, -0.89)	-2.42 (-7.44, 2.59)	
Parity					
Primiparous	Ref	Ref	Ref	Ref	0.618
Multiparous	-0.65 (-1.80, 0.50)	-0.47 (-2.57, 1.65)	-0.40 (-1.86, 1.06)	1.44 (-1.60, 4.48)	
Med. Compl.					
No	Ref	Ref	Ref	Ref	0.634
Yes	0.49 (-0.91, 1.89)	-0.77 (-3.24, 1.70)	-0.70 (-2.39, 0.98)	0.97 (-2.24, 4.18)	

Table 14 shows the association between the decision-making dimension and the women's characteristics by country of origin. Age, income, marital status and parity have no significant influence on decision-making in any of the origins. Medical complications are negatively associated with women being involved in decision-making for women from all origins, except Eastern Europe, where the association is not statistically significant. For the education variable there is an interaction with origin and decision-making. Within Portuguese and Brazilian, women with the highest level of education feel significantly more involved in decision-making compared to women with the lowest level of education. The effect of education is strongest for Brazilian women (B -6.18, CI -9.78; -2.57). For Eastern Europe and PALOP there seems to be no effect of education on the perceived involvement of decision-making.

Table 14: Linear regression coefficients (B(95%CI)) of women's socioeconomic and obstetric characteristics with Decision-making dimension stratified by origin

DECISION-MAKING B (95% CI)					
	Portugal	Brazil	PALOP	East. Eur.	p-value interaction
Age	0.03 (-0.06, 0.12)	0.07 (-0.14, 0.29)	0.01 (-0.11, 0.12)	0.01 (-0.29, 0.30)	0.938
Education					
Low	Ref	Ref	Ref	Ref	0.004
Intermediate	-1.20 (-2.54, 0.13)	0.01 (-3.11, 3.14)	-1.01 (-2.55, 0.53)	-0.59 (-5.37, 4.19)	
High	-2.15 (-3.45, -0.86)	-6.18 (-9.78, -2.57)	-0.40 (-2.20, 1.41)	-3.53 (-7.75, 0.69)	
Income (Euro)					
<500	Ref	Ref	Ref	Ref	0.060
501-1000	0.89 (-1.34, 3.12)	2.81 (-2.56, 8.18)	-1.73 (-3.37, -0.08)	1.80 (-4.62, 8.22)	
1001-2000	-0.84 (-3.05, 1.38)	2.19 (-3.45, 7.80)	-1.58 (-4.02, 0.87)	4.52 (-1.98, 11.01)	
>2000	-1.25 (-3.70, 1.20)	-1.89 (-8.76, 4.97)	-3.58 (-8.42, 1.25)	3.44 (-4.13, 11.01)	
Marital Status					
Married	Ref	Ref	Ref	Ref	0.504
Partnership	-0.95 (-2.12, 0.22)	-1.02 (-4.31, 2.27)	0.17 (-1.62, 1.97)	2.35 (-2.06, 6.75)	
Single	0.05 (-1.29, 1.38)	-0.63 (-3.88, 2.62)	-0.39 (-2.07, 1.28)	-2.05 (-7.98, 3.88)	
Parity					
Primiparous	Ref	Ref	Ref	Ref	0.520
Multiparous	0.67 (-0.37, 1.71)	-0.25 (-2.92, 2.41)	-0.46 (-2.00, 1.08)	1.66 (-1.79, 5.11)	
Medical Complications					
No	Ref	Ref	Ref	Ref	0.052
Yes	-2.16 (-3.41, -0.92)	-6.11 (-9.17, -3.06)	-2.49 (-4.19, -0.69)	-1.43 (-5.12, 2.25)	

As a significant interaction between education and country of origin have been identified in the three dimensions of involvement, the mean scores for each dimension of involvement are shown stratified by education level, according to women's origin, in Table 15.

Table 15: Mean scores (95% Confidence Intervals) for each dimension of Involvement by level of education according to origin.

Crude Model				Adjusted Model*				
Mean (95%CI)				Mean (95%CI)				
	Basic or less	Secondary	University		Basic or less	Secondary	University	
INFORMATION				p-value (education)			p-value (education)	
Portugal	49.8 (48.8, 50.8)	51.7 (50.8, 52.6)	52.3 (51.5, 53.2)	0.002	50.0 (48.9, 51.1)	51.6 (50.7, 52.5)	52.3 (51.3, 53.2)	0.009
Brazil	50.9 (48.7, 53.1)	50.2 (48.7, 51.7)	47.9 (45.8, 50.1)		50.9 (48.7, 53.2)	50.4 (48.8, 51.9)	48.1 (45.8, 53.2)	
PALOP	47.2 (46.0, 48.4)	48.2 (47.1, 49.4)	47.4 (45.9, 48.9)		47.6 (46.3, 48.9)	48.9 (47.6, 50.1)	47.2 (45.6, 48.9)	
Eastern European	44.1 (41.1, 47.1)	46.9 (44.2, 49.7)	49.5 (47.6, 51.4)		43.8 (40.7, 46.9)	47.9(45.0, 50.7)	49.6 (47.6, 51.6)	
p-value (origin)	<0.001				<0.001			
p-value (origin*education)= 0.007					p-value (origin*education)=0.006			
COMMUNICATION								
Portugal	50.3 (49.3, 51.3)	51.3 (50.4, 52.2)	51.0 (50.2, 51.9)	0.467	50.4 (49.3, 51.4)	51.4 (50.5, 52.3)	51.2 (50.3, 52.2)	0.292
Brazil	49.9 (47.7, 52.1)	49.4 (47.9, 50.9)	43.9(41.7, 46.1)		50.0 (47.8, 52.3)	49.8 (48.2, 51.3)	44.4 (42.2, 46.6)	
PALOP	49.3 (48.1, 50.5)	48.8 (47.6, 49.9)	50.1 (48.4, 51.6)		48.8 (47.5, 50.2)	48.6 (47.3, 49.9)	49.8 (48.2, 51.5)	
Eastern European	49.3 (46.2, 52.3)	49.6 (46.7, 52.5)	47.9 (46.0, 49.8)		49.2 (46.1, 52.3)	50.4 (47.4, 53.3)	48.3 (46.3, 50.3)	
p-value (origin)	<0.001				<0.001			
p-value (origin*education) < 0.001					p-value (origin*education)=0.002			
PREFERENCES								
Portugal	50.4 (49.4, 51.5)	50.3 (49.4, 51.2)	50.7 (49.9, 51.5)	0.898	50.4 (49.3, 51.5)	50.5 (49.5, 51.4)	51.2 (50.2, 52.2)	0.769
Brazil	49.3 (47.0, 51.5)	49.4 (47.9, 50.9)	49.3 (47.1, 51.5)		49.3 (47.0, 51.6)	49.3 (47.6, 50.9)	49.6 (47.4, 52.0)	
PALOP	49.6 (48.3, 50.8)	48.8 (47.6, 50.0)	48.9 (47.3, 50.5)		49.2 (47.9)50.6)	48.3 (46.9, 49.6)	49.0 (47.3, 50.6)	
Eastern European	50.2 (47.3, 53.2)	51.5 (48.8, 54.3)	50.0 (48.1, 51.9)		49.6 (46.5, 52.8)	51.3 (48.5, 54.2)	50.1 (48.0, 52.2)	
p-value (origin)	0.015				0.025			
p-value (origin*education)= 0.929					p-value (origin*education)=0.897			
DECISION-MAKING								
Portugal	51.6 (50.6, 52.6)	50.4 (49.5, 51.3)	49.4 (48.6, 50.3)	<0.001	51.5 (50.5, 52.6)	50.5 (49.6, 51.4)	49.8 (48.8, 50.7)	<0.001
Brazil	50.1 (47.8, 52.3)	50.1 (48.5, 51.6)	43.9 (41.7, 46.1)		50.1 (47.8, 52.4)	50.0 (48.4, 51.6)	43.8 (41.6, 46.0)	
PALOP	51.0 (49.8, 52.2)	49.9 (48.8, 51.2)	50.6 (49.0, 52.2)		50.6 (49.3, 52.0)	50.0 (48.7, 51.3)	50.5 (48.8, 52.1)	
Eastern European	50.3 (47.3, 53.3)	49.7 (47.0, 52.4)	46.8 (44.8, 48.7)		51.3 (48.2, 54.4)	50.1 (47.3, 52.8)	46.7 (44.6, 48.7)	
p-value (origin)	0.001				0.004			
p-value (origin*education)= 0.005					p-value (origin*education)=0.003			
*Adjusted for age, marital status, income, parity, medical complications, origin-education interaction term								

Results show significant differences in the levels of information, communication, preferences and decision-making according to women's origin, even after adjustment for age, marital status, income, parity, medical complications. Therefore, these differences between origin groups are not explained by sociodemographic and obstetric characteristics, being likely to be attributed to the origin of women.

Besides the country differences, the mean scores of information and decision making are also significantly different between education groups. While Portuguese and Eastern European women report significantly more information when educational level increase, the Brazilian women tend to report lower levels of information. However, for decision making, in general the levels of involvement decreased when education increased for women of all origins, but not among PALOP.

5. DISCUSSION

To our knowledge, this is the first large-scale quantitative study addressing the involvement of migrant women in maternal care and its associated factors in Portugal. Four dimensions of involvement were assessed: information provision, communication with health professional, elicitation of preferences and involvement in decision-making. Our results show that migrant women report lower levels of involvement than Portuguese women in the information, communication and preferences dimensions. Regarding decision-making, women from the PALOP and Portugal report similar levels of involvement, while Brazilian and Eastern Europeans report lower levels than the other groups.

To date, most existing studies have addressed migrant involvement in maternal care in a somewhat scattered fashion, focusing on only one or two of the dimensions considered in this study. As such, it contributes to provide a comprehensive assessment of an understudied aspect of diversity-competent care provision – migrant user involvement, that is crucial to the implementation of people-centred care (Pulvirenti *et al.*, 2011; De Freitas, 2017). Lower levels of involvement in maternal care by migrants may be explained by extrinsic factors related to disease, the doctor-patient relationship and health care organization (Vahdat *et al.*, 2014) which interact with factors intrinsic to migrants' own set of characteristics. This study provides insight on the latter, while acknowledging the need for further research that can provide understanding on the influence of the former set of factors.

As this study shows, the biggest disparities in involvement in maternal care between migrant and native women were found in regard to information. This is in line with previous research that points to migrants being given less intelligible information than natives (Reitmanova and Gustafson, 2008; Redshaw and Heikkila, 2010; Redshaw and Henderson, 2015). This may result from migrants' unfamiliarity with the care provision in the host country and health professionals unawareness of that knowledge gap, who end up providing the same type of information to everyone instead of the information people may require (Ascoly, Van Halsema and Keyzers, 2001; Challinor, 2012a; Balaam *et al.*, 2013; Phillimore, 2016). In our study, however, differences were also found between migrant groups. Eastern European and PALOP women reported having less information compared to Brazilian women. Furthermore, women from Eastern Europe and PALOP reported not understanding the information given to them by health professionals with a higher frequency than Brazilian and Portuguese. These differences may be explained by language barriers (Suurmond and Seeleman, 2006). A study found that language was considered a barrier to receiving quality maternal care by Eastern European women (Almeida, Casanova, *et al.*, 2013). While the

PALOPs may have Portuguese as their official language, creole languages are often preferred for daily use and command of Portuguese may vary across regions and levels of education (Vilela, 2002). Nevertheless, even when migrants have a high proficiency in the language of the host country, understanding medical terms can be challenging (Yelland *et al.*, 2015).

Language barriers can be overcome through good communication skills such as avoiding medical jargon, trying different ways of explaining information and checking if the information is understood (Paternotte *et al.*, 2015). However, various studies found communication with health professionals to be experienced as worse by migrants than natives (Redshaw and Heikkila, 2010; Balaam *et al.*, 2013; Yelland *et al.*, 2015; Henderson *et al.*, 2018). In our study, all migrant groups scored significantly lower than natives in the dimension of communication. Although no significant differences between migrant groups were found, Brazilian and Eastern European women rated communication slightly worse than women from PALOP. This may be explained by differing expectations regarding care provision (Henderson *et al.*, 2018). Migrants' expectations of health care provision at the host country may be shaped by experiences of care in their country of origin (Machado *et al.*, 2009), as showed by studies carried out in Portugal and elsewhere. Brazilian migrant women in Portugal perceive health professionals to be too strict, which inhibits them from asking further questions, while Eastern Europeans felt providers were unprepared to answer their questions (Almeida, Casanova, *et al.*, 2013; Almeida and Caldas, 2014). Brazilian women further reported discrimination, stereotyping and misinterpretation of their behaviour by health professionals, which also caused them to have a worse perception of communication (Dias, Gama and Rocha, 2010a). Women from PALOP, on the other hand, may be acquainted with more paternalistic doctor-patient relationships and have lower expectations in regard to the degree of information to be shared and less need to be involved in treatment (De Freitas, 2006). Moreover, they may experience pregnancy as something out of their control (Rocha *et al.*, 2013) and therefore expect it to unfold without the need for too much of their own intervention.

In addition to varying expectations regarding communication, women from different socio-cultural backgrounds may have varying preferences regarding adequate care during pregnancy and childbirth (Chalmers, 2013). Our study found only small differences between migrant and native women in regard to being asked for preferences and those should be interpreted with caution, as chances of measurement error are high for the preference scale. However, it was found that only a small proportion of women were asked for general preferences of care (e.g. if they wanted to follow specific customs) and that there were also gaps in asking them for preferences regarding pain control and birthing position (e.g. only

41.3% of Brazilian women were asked how they would like to manage their pain and only 38.1% of PALOP women were always allowed to choose birthing position). While some health professionals may be unaware of different cultural customs surrounding maternal care, or even look down upon them, others may assume that women have certain preferences based on cultural stereotypes. One case in point is that of Brazilian women's preference for caesarean section. Merry and colleagues suggest that this leads to higher emergency caesarean among this group in the host country even when it may actually not be necessary because women from countries with high caesarean rates have a lower threshold for accepting an emergency caesarean as they perceive it as normal (Merry *et al.*, 2016). A higher rate of caesarean section has also been found among migrant women in Portugal (Almeida, Santos, *et al.*, 2014). One study suggests that this may result from the higher preference for caesarean amongst Brazilian women (Teixeira, 2013), who are more likely to accept that option if presented. Cultural stereotyping has been identified as a problem by Challinor, who found that focusing too much on culture can be counterproductive for effective communication by, for example, not mentioning issues out of respect for culture (Challinor, 2012a). It is important, therefore, for health professionals to assess preferences of all individual women and not assume preferences based on culture, but rather be open to a non-judgmental discussion about women's possible medical concerns and preferences.

Although several studies found that migrants tend to be less involved in decision-making over the course of maternity care (Henderson, Gao and Redshaw, 2013; Hennegan, Redshaw and Kruske, 2015; Redshaw and Henderson, 2015; Yelland *et al.*, 2015), our study shows that this does not apply to all migrant groups. While Brazilian and Eastern European women felt they were less involved in decision-making, women from PALOPs felt as involved as native Portuguese women. While some women want to have full power over the decision, others want to share it with their provider and yet others prefer to delegate the decision to their provider (Thompson, 2007). Our results suggest that for Eastern European and Brazilian women preferences do not match with their actual involvement in decision-making. Previous studies carried out in Portugal show that both Brazilians and Eastern Europeans would like to have a more active role in maternal care but feel that Portuguese health professionals are not prepared for (Almeida, Caldas, *et al.*, 2014) and may even criticize active service users (Dias, Gama and Rocha, 2010a). Qualitative data on PALOP women's preferences regarding decision-making was not found, but it could be the case that they expect to play a less active role and, as such, have a more positive perception of their degree of involvement in decision-making regarding maternal care.

The differences found regarding migrant and native women's involvement in maternal care may help to explain the disparities found between these groups' health care use. Despite having equal entitlements to maternal care, migrants in Portugal make less use of maternal services when compared to natives (Almeida, Santos, *et al.*, 2014). International literature suggests that gaps in involvement, especially concerning the communication dimension, are one of several factors explaining reduced access (Keygnaert *et al.*, 2016; Heslehurst *et al.*, 2018). This has also been reported in Portugal. Eastern European and Brazilian women stated that dissatisfying communication with health professionals inhibited them from coming back when further issues arose (Almeida, Casanova, *et al.*, 2013). Negative attitudes of health care professionals were also pointed out as a barrier to access to health care by almost 20% of participants in another study (Dias, Severo, & Barros, 2008).

When looking at women's own set of characteristics, our study shows that factors previously identified by as having a positive influence on the level of information such as higher age (Berg and Benbassat, 2001; Jonge *et al.*, 2009) and income (Youash *et al.*, 2012), only have the same effect on the Portuguese native population. Furthermore, a positive effect of education on information is only apparent for Portuguese and Eastern European women. Education's positive effect on the level of information received may be due to service users with higher education feeling a higher responsibility to be informed, while those lower educated may instead look at health professionals as experts (Smith *et al.*, 2009). Yet, our study also shows that for PALOP women's education shows no influence and that for Brazilians it has a negative influence with those more educated feeling they were less informed. A negative association of higher education has also been identified for the feeling of being involved in decision-making. This could be explained by lower preferences for participating in decision-making by women with lower education levels (O'Cathain *et al.*, 2002; Smith *et al.*, 2009). In our study this influence was not observed for PALOP women and seems to be stronger for Brazilian women. More research is needed to better understand the interaction of country of origin and education regarding the level of information.

As expected, medical complications impair good communication and involvement in decision-making (Berg and Benbassat, 2001; Fair and Morrison, 2012). Our study suggests that this influence may be more salient among Brazilian women living in Portugal, who are more likely to have a caesarean section (Teixeira, 2013). A similar effect was suggested by a study by Attanasio and colleagues which found that shared decision-making was more likely to be reduced by caesarean section among black than for white women (Attanasio, Kozhimannil and Kristen, 2018).

Contrary to previous findings (O’Cathain *et al.*, 2002; Green and Baston, 2003; Youash *et al.*, 2012), in our study parity does not have a significant influence on any of the dimensions of involvement for any of the groups. This could be due to the heterogeneity of operationalization of involvement dimensions in the studies (De Graaf, Steegers and Bonsel, 2013). Our study did not consider any variables besides women’s individual characteristics as factors influencing involvement, which is a limitation of this study. However, care settings may influence the degree of to which women are involved in care. Maternity care delivered in hospitals has been negatively associated with involvement in a study done in Israel (Berg and Benbassat, 2001). Participants for our study were recruited from public hospitals. Therefore, if the study is replicated with participants from private hospitals (where caesarean rates are higher) or other care settings, different results may be expected. Involvement has also shown to vary across interventions (Berg and Benbassat, 2001; O’Cathain *et al.*, 2002; Thompson and Miller, 2014). This study only focused on general involvement. Involvement by migrant women in specific interventions requires additional research.

Another limitation of this study is that the scales for the preference and decision-making dimensions showed low reliability. As there is no consensus on the definition of involvement, there is no gold-standard for measurements of involvement and there is a plethora of scales. In the field of maternal care specifically, there is a lack of validated instruments for involvement in care. The only measure identified specifically focusing on involvement was the “Mothers Autonomy in Decision Making (MADM) Scale” (Vedam *et al.*, 2017). The scale is, however, not validated for the migrant population. The MFMCQ, which was used for this study, was created with the migrants situation in mind and culturally validated for the migrant population in Canada (Gissler, Korfker and Mccourt, 2014). We used the questions to create a measure of involvement during maternal care and encountered some issue. While reliability is sufficient for the information and communication scale, there could be more topics included relevant to migrants' information needs such as the workings of the health system (Challinor, 2012b). Furthermore, a rating question on the topics that are considered important by woman could be included. Many variables had to be removed due to low consistency across countries. This could be an indication that involvement is conceptualized differently across different groups or that some of the questions may have been understood differently in different languages. It is therefore important to include representatives from different groups into the creation and validation process of questionnaires and study designs. Nevertheless, it should be noted that the excluded preference-variables had a lot of missing data due to women not having a labour period before birth and therefore not answering those questions. This can also be an explanation for inconsistencies in the PCA.

Due to the exclusion of some variables, the preference scale only has two variables. This may explain the low reliability. The decision-making scale only includes three variables and one of the variables also showed low consistency across countries. More questions would be needed for higher reliability and consistency. The results of preference and decision-making scale should be interpreted therefore with caution.

In summary, this study found differences between native and migrant women's involvement in maternal care in Portugal. All migrant groups perceived lower levels of involvement when compared to native Portuguese. In part, these differences were explained by factors intrinsic to participants such as sociodemographic and obstetric characteristics that are likely to interact with external factors such as health care organization and culture. Limited user involvement in maternal care by migrants may be a contributing factor to poorer maternal health by and the under-use of health care services observed among migrants. Promoting adequate user involvement should be considered when seeking to implement diversity-competent and people-centred maternal care.

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APPENDIX

Table 16: Comparison of means (by ANOVA) of questions with Likert-scale

	Portugal	Brazil	PALOP	Eastern European	Other	p-value (ANOVA)
Enough explanation	2.6827	2.5545	2.5688	2.5606	2.5245	< 0.001
Encouraging and comforting	2.7479	2.6511	2.7374	2.6313	2.5450	0.039
Comfortable asking question	2.8709	2.6812	2.8032	2.7653	2.6520	< 0.001
Kept informed	2.7670	2.6437	2.6115	2.5427	2.5025	< 0.001
Issues taken seriously	2.7640	2.6542	2.6862	2.6533	2.6700	0.004
Asked for questions	2.4850	2.2143	2.1648	2.3415	2.3448	< 0.001
Decision w/o wishes	2.7539	2.6364	2.7579	2.6313	2.5450	< 0.001
Understand information	2.9267	2.8941	2.8453	2.7783	2.8720	< 0.001

Table 17: Reliability for model for each origin: Portugal

PORTUGAL	n	mean	sd	r drop	alpha std
Dimension 1 (Information)					
Signals labour	1423	0.91	0.29	0.61	0.51
Medications	1418	0.90	0.30	0.39	0.62
Expectations labour	1420	0.86	0.35	0.65	0.48
Non-medical pain	1423	0.69	0.46	0.43	0.60
Total		0.84	0.24		0.63
Dimension 2 (Communication)					
Kept informed	1412	2.8	0.55	0.65	0.82
Sufficient explanation	1415	2.7	0.64	0.74	0.79
Comfortable asking question	1410	2.9	0.46	0.51	0.86
Worries taken seriously	1411	2.8	0.56	0.69	0.81
Encouraging and reassuring	1416	2.7	0.57	0.73	0.80
Total		2.7	0.45		0.85
Dimension 3 (Preferences)					
Preferences intrapartum	1406	0.122	0.33	0.35	0.35
Preferences postpartum	1407	0.062	0.24	0.35	0.35
Total		0.095	0.24		0.52
Dimension 4 (Decsion-making)					
Preferences not allowed	1419	0.034	0.18	0.25	0.38
Asked do smth unwanted	1425	0.054	0.23	0.27	0.34
Decisions without wishes	1414	0.246	0.68	0.28	0.35
Total		0.11	0.28		0.45

Table 18: Reliability for model for each origin: Brazil

BRAZIL	n	mean	sd	r drop	alpha std
Dimension 1 (Information)					
Signals labour	320	0.88	0.33	0.51	0.54
Medications	322	0.90	0.30	0.35	0.65
Expectations labour birth	320	0.80	0.40	0.58	0.47
Non-medical pain control	322	0.58	0.49	0.31	0.68
Total		0.79	0.27		0.66
Dimension 2 (Communication)					
Kept informed	320	2.6	0.74	0.74	0.86
Sufficient explanation	321	2.6	0.83	0.78	0.85
Comfortable asking question	320	2.7	0.76	0.62	0.89
Worries taken seriously	321	2.7	0.75	0.72	0.86
Encouraging and reassuring	321	2.7	0.74	0.77	0.85
Total		2.6	0.64		0.89
Dimension 3 (Preferences)					
Preferences labour	321	0.078	0.27	0.32	0.32
Preferences postpartum	317	0.047	0.21	0.32	0.32
Total		0.062	0.2		0.49
Dimension 4 (Decision-making)					
Preferences not allowed	319	0.047	0.21	0.24	0.34
Asked do smth unwanted	321	0.093	0.29	0.22	0.37
Decision without wishes	319	0.364	0.85	0.28	0.24
Total		0.17	0.36		0.41

Table 19: Reliability for model for each origin: PALOP

PALOP	n	mean	sd	r drop	alpha std
Dimension 1 (Information)					
Signals labour	700	0.83	0.38	0.56	0.61
Medications	698	0.86	0.35	0.44	0.69
Expectations labour birth	695	0.74	0.44	0.61	0.58
Non-medical pain control	694	0.50	0.50	0.39	0.72
Total		0.73	0.31		0.72
Dimension 2 (Communication)					
Kept informed	695	2.6	0.78	0.63	0.74
Sufficient explanation	698	2.6	0.74	0.67	0.73
Comfortable asking question	696	2.8	0.61	0.40	0.81
Worries taken seriously	698	2.7	0.67	0.57	0.76
Encouraging and reassuring	697	2.7	0.63	0.63	0.74
Total		2.6	0.52		0.79
Dimension 3 (Preferences)					
Preferences labour	700	0.083	0.28	0.27	0.27
Preferences postpartum	689	0.039	0.19	0.27	0.27
Total		0.063	0.2		0.42
Dimension 4 (Decsion-making)					
Preferences not allowed	691	0.026	0.16	0.20	0.33
Asked do smth unwanted	696	0.059	0.24	0.20	0.33
Decision without wishes	694	0.242	0.69	0.27	0.14
Total		0.11	0.28		0.36

Table 20: Reliability for model of each origin: Eastern Europe

EASTERN EUROPE	n	mean	sd	r drop	alpha std
Dimension 1 (Information)					
Signals labour	202	0.80	0.40	0.48	0.53
Medications	199	0.85	0.36	0.35	0.62
Expectations labour	201	0.75	0.43	0.47	0.55
Non-medical pain control	203	0.53	0.50	0.40	0.60
Total		0.73	0.3		0.64
Dimension 2 (Communication)					
Kept informed	199	2.5	0.83	0.61	0.76
Sufficient explanation	198	2.6	0.83	0.73	0.72
Comfortable asking question	196	2.8	0.59	0.62	0.76
Worries taken seriously	199	2.7	0.78	0.46	0.81
Encouraging and reassuring	202	2.6	0.82	0.54	0.78
Total		2.6	0.6		0.81
Dimension 3 (Preferences)					
Preferences intrapartum	205	0.112	0.32	0.29	0.29
Preferences postpartum	201	0.065	0.25	0.29	0.29
Total		0.09	0.23		0.45
Dimension 4 (Decision-making)					
Preferences not allowed	204	0.039	0.19	0.17	0.32
Asked do smth unwanted	204	0.098	0.30	0.24	0.17
Decisions without wishes	198	0.369	0.85	0.19	0.43
Total		0.16	0.33		0.41

1

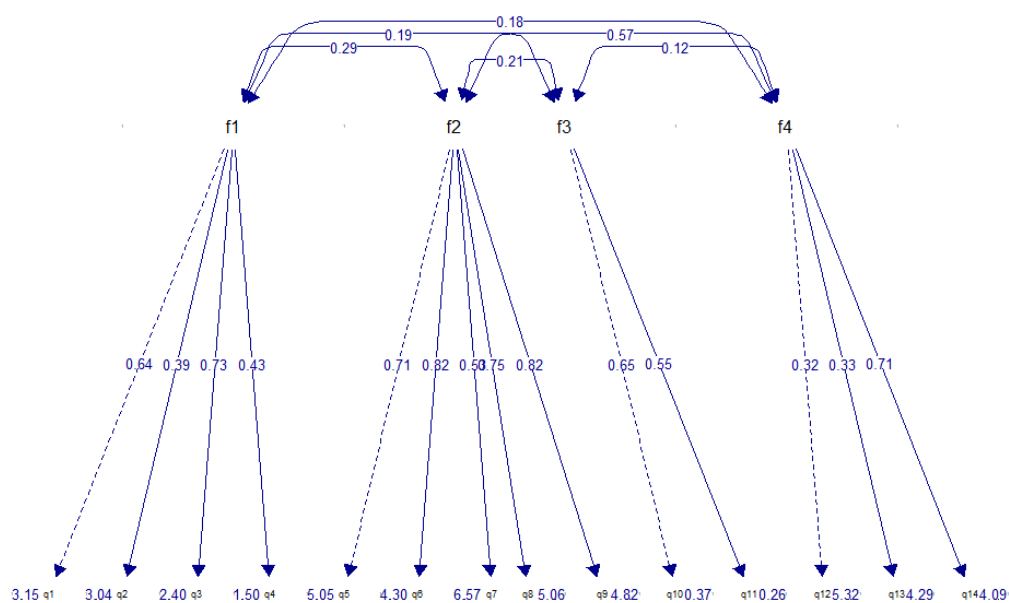


Figure 2: Plot Configural Model: Portugal

2

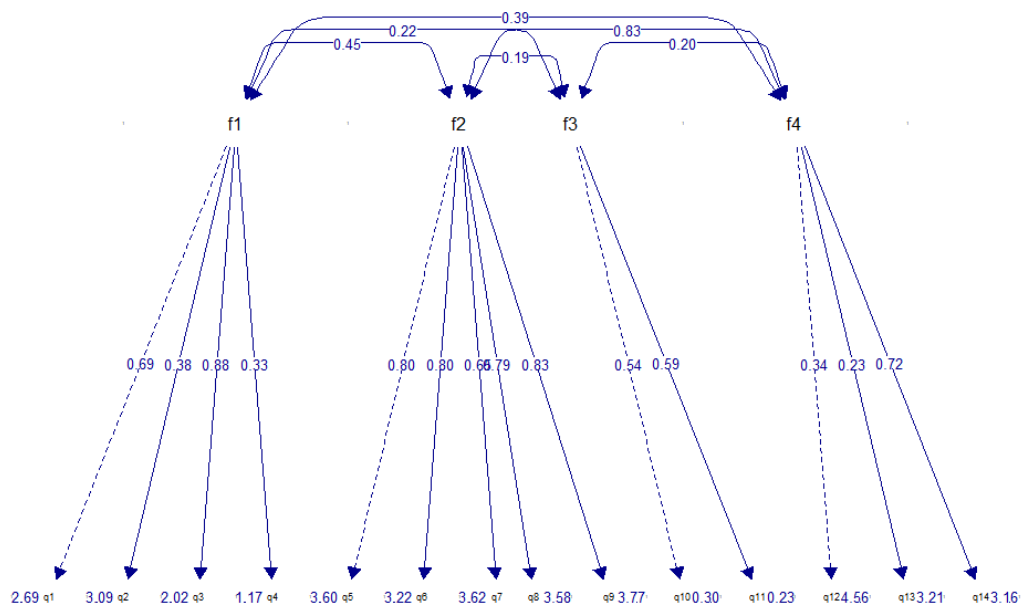


Figure 3: Plot Configural Model: Brazil

3

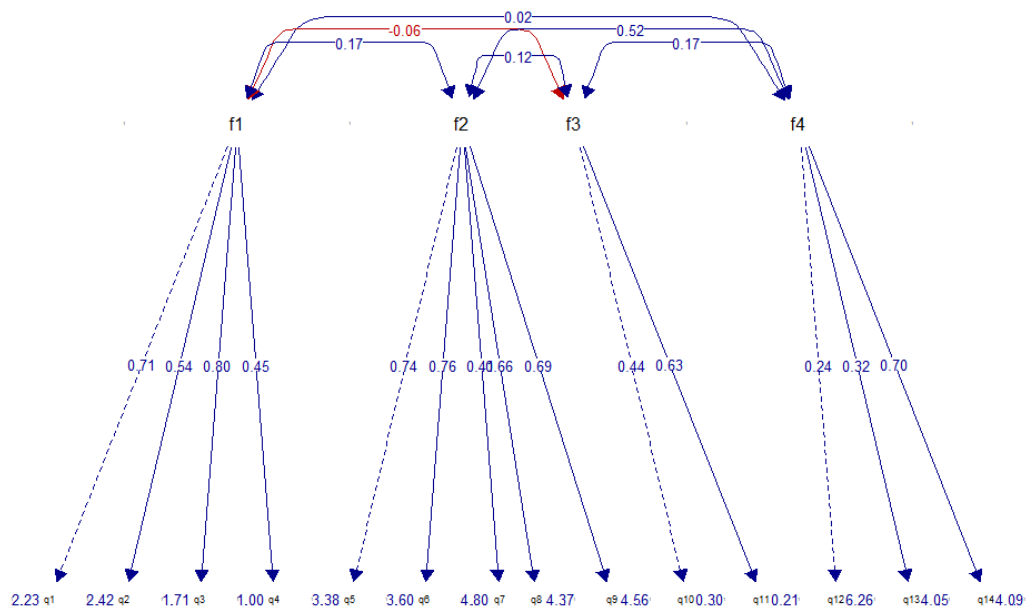


Figure 4: Plot Configural Model: PALOP

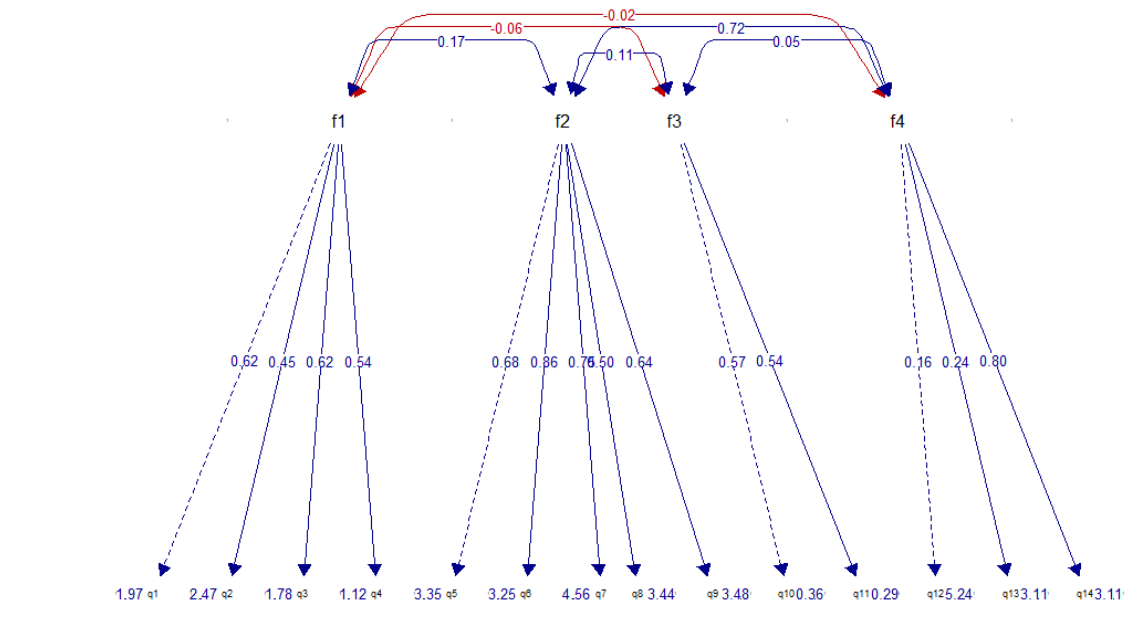


Figure 5: Plot Configural Model: Eastern Europe

SEDE ADMINISTRATIVA

FACULDADE DE **MEDICINA**

INSTITUTO DE **CIÊNCIAS BIOMÉDICAS ABEL SALAZAR**

