IUL School of Social Sciences and Humanities
Department of Social and Organizational Psychology

Immigrant caregivers' adherence to Child Primary Care Health recommendations: Towards a psychosocial approach

Susana Sofia Monteiro Mourão

Thesis presented in partial fulfilment of the requirements for the degree of
Doctor in Psychology
Specialty in Clinical and Health Psychology

Supervisor:
Ph.D, Sónia Gomes da Costa Figueira Bernardes, Assistant Professor,
ISCTE – Lisbon University Institute, Lisboa, Portugal

June, 2019

IUL School of Social Sciences and Humanities
Department of Social and Organizational Psychology

Immigrant caregivers' adherence to Child Primary Care Health recommendations: Towards a psychosocial approach

Susana Sofia Monteiro Mourão

Thesis presented in partial fulfilment of the requirements for the degree of
Doctor in Psychology
Specialty in Clinical and Health Psychology

Jury:
Ph.D. Maria Luísa Torres Queiroz de Barros, Full Professor at Faculdade de Psicologia – Universidade de Lisboa, Portugal
Ph.D. Sónia F. Dias, Associate Professor with Aggregation at Escola Nacional de Saúde Pública – Universidade de Lisboa, Portugal
Ph.D. Maria Manuela Calheiros, Associate Professor at Faculdade de Psicologia – Universidade de Lisboa, Portugal
Ph.D. Lígia Maria Santos Monteiro, Assistant Professor at ISCTE – Instituto Universitário de Lisboa, Portugal
Ph.D. Sónia Gomes da Costa Figueira Bernardes, Assistant Professor at ISCTE – Instituto Universitário de Lisboa, Portugal
Ph.D. Diniz Marques Francisco Lopes, Assistant Professor at ISCTE – Instituto Universitário de Lisboa, Portugal

June, 2019

This work was funded by a doctoral grant (BD/96783/2013) from the Portuguese Foundation for Science and Technology [FCT; Fundação Portuguesa para a Ciência e Tecnologia].

Acknowledgments

All people to whom I wish to express my gratitude speak Portuguese. Thus, my acknowledgments are not written in English.

Tenho em mim todos os sonhos do mundo, mas sei que os mais grandiosos merecem ser partilhados. Por isso, o meu eterno e especial **obrigada**:

- A todas as instituições que acolheram este trabalho, revestindo-o de pertinência e utilidade, e aos cuidadores/pais por lhe darem corpo, vida e voz.
- À professora Sónia Bernardes, orientadora desta tese e de todo o caminho que é fazer um doutoramento, por os ter pautado de incentivo, excelência e rigor.
- À professora Lígia Monteiro, relatora deste trabalho, por o ter acarinhado desde quando era ainda um projeto e pelas apreciações encorajadoras no final de cada ano.
- À professora Helena Carvalho, pela grande sabedoria em partilhar humildemente com os outros tudo aquilo que (tão bem) sabe.
- À Eunice e à Melanie por se terem disponibilizado a rever os resultados do nosso primeiro estudo e pela dedicação com que o fizeram.
- À Rita Guerra e à Susana Batel por trazerem ideias novas e jovialidade a alguns dos capítulos desta tese.
- Aos vários colegas com quem me fui cruzando e aprendendo, muito para além da ciência. Alguns desde o início, como a Cláudia, a Margarida, a Paula. Outros cuja presença se foi tornando essencial, como a Eva, a Isa, a Jaclin, a Marta, a Rita.
- Ao "grupo Maravilha", que me acompanha nesta aventura da investigação desde o mestrado, mas cuja amizade transbordou muito para além dos espaços do ISCTE.
- Aos meus amigos, os de sempre, por representarem o que sou, para além do trabalho. À Andreia e à Bruna, por termos crescido juntas e partilharmos agora a alegria das nossas "novas" famílias. Aos amigos do Alentejo, pelo doce refúgio em dias quentes de Verão. Aos da "casa do David", pelos sorrisos e energia renovada em cada encontro, em cada jantar.
- Aos meus pais, por me transmitirem desde cedo que as melhores e mais justas conquistas chegam por via do nosso trabalho e dedicação. Por me ampararem, por permitirem que continuasse a estudar e a evoluir mais e mais, por estarem sempre lá...

- À minha irmã, Rita, pela amizade e cumplicidade(s) habituais, mas sobretudo pela partilha da vida desde que me lembro da minha existência.
- Ao Miguel, por estar a meu lado nas conquistas e vitórias mais felizes, mas também nos finais de dia mais difíceis, por acreditar e me fazer acreditar sempre em mim... Pelo amor, o incondicional.
- À minha filha Madalena, que entretanto chegou para encher de brilho, brincadeira e imaginação todos os meus dias. É através dela, e dos seus olhinhos brilhantes e mãos pequeninas, que vislumbro um mundo cada vez melhor.

Abstract

Immigrant caregivers' adherence to Child Primary Care (CPC) health recommendations may help minimizing health-related problems prevalent among their children (e.g. obesity, dental problems). Previous research focused on the determinants of immigrants' access to health services, but less is known about the determinants of their adherence to health professionals' recommendations, especially in a primary health care context. Accordingly, three main aims were outlined for this thesis: (1) investigate the psychosocial determinants of immigrant caregivers' adherence to CPC recommendations; (2) develop and validate a measure of caregivers' adherence to CPC recommendations; (3) explore immigrant caregivers' social representations about the Portuguese CPC services and activities. Four studies were conducted to achieve these aims. Studies 1 and 2 were qualitative and included 35 immigrant (Cape Verdean and Brazilian) and Portuguese caregivers. Study 3 (n = 662) and Study 4 (n = 123) were quantitative cross-sectional, including immigrant (mainly Brazilian) and Portuguese parents of children aged between 2 and 6 years. Findings show that caregivers' adherence to CPC recommendations is a two-dimensional concept – including adherence to a safe psychomotor development and nutritional counselling – reliably and validly assessed by the new CPC-Adherence Scale. Several psychosocial determinants, at different levels of analysis (structural, individual, interpersonal and intergroup), are relevant predictors of immigrant caregivers' adherence to CPC recommendations. Caregivers' representations of CPC and its activities to some extent differ according to caregivers' social and cultural backgrounds. These findings contribute to better understand the role of immigrants' "non-intentional" adherence behaviors and, hence, to better inform interventions to increase CPC health professionals' multicultural sensitivity/competence.

Key-words: Treatment adherence, child primary care recommendations, immigrant caregivers, psychosocial determinants, health promotion.

PsycINFO Codes:

2226 Health Psychology Testing

3360 Health Psychology & Medicine

3365 Promotion & Maintenance of Health &Wellness

3373 Community and Social Services

Resumo

A adesão dos cuidadores imigrantes às recomendações de Vigilância de Saúde Infantil (VSI) pode minimizar problemas de saúde prevalentes nos seus filhos (e.g. obesidade, problemas dentários). Estudos anteriores centraram-se nos determinantes de acesso dos imigrantes aos serviços de saúde, mas pouco se sabe sobre os determinantes da sua adesão às recomendações dos profissionais de saúde, especialmente num contexto preventivo de saúde. Assim, delinearam-se três objetivos principais para esta tese: (1) investigar os determinantes psicossociais da adesão dos cuidadores imigrantes às recomendações de VSI; (2) desenvolver e validar uma medida da adesão dos cuidadores às recomendações de VSI; (3) explorar as representações sociais dos cuidadores imigrantes sobre os serviços de VSI Portugueses e suas atividades. Para atingir esses objetivos, realizaram-se quatro estudos. Os Estudos 1 e 2, qualitativos, incluíram 35 cuidadoras imigrantes (Cabo-Verdianas e Brasileiras) e Portuguesas. Os Estudos 3 (n = 662) e 4 (n = 123), quantitativos e transversais, incluíram pais imigrantes (principalmente Brasileiros) e Portugueses de crianças com 2 a 6 anos de idade. Os resultados mostram que a adesão dos cuidadores às recomendações de VSI é um conceito bidimensional – inclui a adesão ao desenvolvimento psicomotor seguro e aconselhamento nutricional – medido pela desenvolvida *CPC-Adherence Scale*. Vários determinantes psicossociais, de diferentes níveis de análise (estrutural, individual, interpessoal e intergrupal), são preditores relevantes da adesão dos cuidadores imigrantes às recomendações de VSI. As representações sobre a VSI e suas atividades diferem, de certa forma, em função das origens sociais e culturais das cuidadoras. Estes resultados contribuem para melhorar a compreensão sobre os comportamentos de adesão "não intencionais" dos imigrantes e, consequentemente, para informar intervenções que aumentem a sensibilidade/competência multicultural dos profissionais de VSI.

Palavras-chave: Adesão terapêutica, recomendações de vigilância de saúde infantil, cuidadores imigrantes, determinantes psicossociais, promoção de saúde

PsycINFO Codes:

2226 Medição em Psicologia da Saúde

3360 Psicologia da Saúde e Medicina

3365 Promoção e Manutenção da Saúde e do Bem-Estar

3373 Serviços Comunitários e Sociais

TABLE OF CONTENTS

INDEX OF TABLES

INDEX OF FIGURES

1. BACKGROUND AND INTRODUCTION

Part of this chapter is based on the paper: Mourão, S. S. & Bernardes, S. F. (2014). Ethnic Minorities' and Immigrants' Therapeutic (Non)Adherence: What Role for Social and Cultural Contexts? *Análise Psicológica XXXII*(3), 1-11. doi: 10.14417/ap.835.

Immigrant children have generally been identified as a particularly vulnerable group regarding health, as they tend to show poorer health status and increased risks of developing health-related problems such as obesity, asthma, dental problems and mental illnesses (Barak et al., 2010; Javier, Huffman, Mendoza & Wise, 2009; Mas et al., 2010; Schmeer, 2012). Several of these problems may be early detected or minimized by the preventive health recommendations of Child Primary Care services (henceforth CPC) of their host countries. As such, immigrant caregivers' adherence to CPC recommendations assumes particular relevance for the protection of their children's health and promotion of their optimal development (van Esso et al., 2010). Most national and international research on immigrants' health-related vulnerabilities has been mainly focused on the determinants of their access to health services (Dias, Severo, & Barros, 2008; Dias et al., 2018; Oliveira & Gomes, 2018; Wafula & Snipes, 2014; Kalich et al., 2016). Less is known about the determinants of immigrant caregivers' adherence to health professionals' recommendations once they enter health services, in general, and CPC, in particular. Thus, the general purpose of this thesis is to bridge this gap by furthering the understanding about immigrant caregivers' adherence to CPC health recommendations.

The present **Chapter 1** presents the overall theoretical and empirical background of this thesis. First, it will start by clarifying why immigrant families, along with their children, have been widely identified as a vulnerable group in health. Afterwards, the main functions and activities of CPC services will be contextualized, emphasizing the relevance of their health recommendations, in general, and to overcome immigrant children's health-related vulnerabilities, in particular. Third, it will focus on the main theoretical construct of this thesis – "therapeutic adherence" – by describing its conceptual complexity and multidimensionality and highlighting how this construct can be specifically applied to preventive health behaviors. Afterwards, it will be argued that the dominant Socio-Cognitive Models of behavior change that have been widely used to understand adherence behaviors, are not able to entirely account for immigrant caregivers' adherence behaviors, as the latter are mostly determined by psychosocial variables not considered in those models. Consequently, a multilevel approach will be proposed that identifies the psychosocial determinants mostly associated with immigrant adherence behaviors, especially in what concerns pharmacological treatments. Finally, the specific objectives of this thesis and an overview of its main structure will be described.

Immigration pathways and health-related vulnerabilities

Immigrants' health have been assessed by different types of indicators, which sometimes do not present the same conclusions. Some national and international data reveals that immigrants are often healthier than native-born populations, based on their perceived better health conditions or by their lower rates of certain diseases (e.g. chronic or long-term health problems; Hamilton, 2015; Oliveira & Gomes, 2018). This phenomenon is widely recognized as the "healthy migrant effect", probably explained by the fact that immigrants generally have to be in good health to be able to migrate. Nevertheless, immigrants' health advantage tends to fade with the increasing length of residence in the host countries (Gimeno-Feliu, Calderón-Larrañaga, Diaz, Poblador-Plou, Macipe-Costa & Prados-Torres, 2015; Hamilton, 2015), which presupposes an increased health-related vulnerability associated with the migratory process itself.

Indeed, some researchers have reviewed important evidences that point to immigrants' higher health-related vulnerability (Nielsen & Karsnik, 2010; Dias et al., 2018), based on their perceived worse health compared with the native population or on their higher morbidity rates in certain areas (e.g. mental or perinatal health). Besides this, some national trends also highlight that immigrant families in Portugal present a higher prevalence of some health risk behaviors, such as alcohol and tobacco use or unhealthy food practices (Oliveira & Gomes, 2018), which may also increase their health-related vulnerability.

More consistently, the fact that immigrant families often present less favorable socio-economic conditions has been widely used as an indicator of their health-related vulnerability (Jolly & Reeves, 2005; Mendoza, 2009; Oliveira & Gomes, 2018), considering that a lower socio-economic status can hamper their access to health services or have a negative impact on their overall state of health (Gurung, 2006; Straub, 2012). Thus, immigrants' socio-economic difficulties have been identified as social determinants of their worst health, both in national and international studies, and covering issues such as: unemployment or precarious labor (Flores, Abreu, & Tomany-Korman, 2005; Javier et al., 2009; Machado, Santana, Carreiro, Nogueira, Barroso & Dias, 2007); poor housing conditions (Andrade, 2008; Bäckström, 2009; Fonseca & Silva, 2010; Machado et al., 2007; Matos, Gonçalves, & Gaspar, 2004); social isolation (Andrade, 2008; Dias, Rocha & Horta, 2009; Matos et al., 2004; Mendoza, 2009) or separation from family and significant others (Andrade, 2008; Dias et al., 2009); unstable condition in the host country (Dias et al., 2008; Gonçalves, Dias, Luck, Fernandes, & Cabral, 2003; Sousa, 2006). In some international contexts, not having health insurance may also be

considered an important health related problem (Flores et al., 2005; Javier et al., 2009; Schwebel & Brezausek, 2009).

In a more organizational perspective, several barriers in accessing and using health services have been widely identified and also used as indicators of immigrants' health-related vulnerability. Particularly in the Portuguese context, these determinants include specific issues such as: communication problems, due to language difficulties (Andrade, 2008; Dias et al., 2008; Fonseca & Silva, 2010; Rosa, 2007; Silva & Martingo, 2007; Sousa, 2006) or different cultural meanings for the same health-related words (Moleiro, Silva, Rodrigues, & Borges, 2009; Silva & Martingo, 2007); negative behaviors observed in health-care providers, including discrimination (Dias et al., 2009; Moleiro et al., 2009; Rosa, 2007) and poor knowledge about immigrants' rights (Dias et al., 2009); the health services' organization, including administrative barriers, difficulties in scheduling medical appointments (Andrade, 2008; Dias et al., 2009; Fonseca & Silva, 2010), or a lot of time waiting for consultations (Andrade, 2008; Dias et al., 2009; Fonseca & Silva, 2010; Gonçalves et al., 2003; Rosa, 2007; Sousa, 2006). Similar trends were also found in the international research (Kalich, Heinemann & Ghahari, 2016; Mendoza, 2009; Schwarzwald, 2005; Wafula and Snipes, 2014).

Despite some contradictory evidences, most findings support the contention that immigrant families are often a vulnerable group in what concerns their health. Most research highlights the potential impact of migratory processes on health, identifying specific determinants that may contribute to immigrant families' vulnerability in this area. Nevertheless, and especially at the social and organizational levels (i.e. socio-economic conditions and navigation in health services), most authors seem to report essentially to the concepts of "Access to and Use of Health Services", which are more closely related with using or not the services and with how people manage the supplied resources (Levesque, Harris & Russell, 2013; Travassos & Martins, 2004). Although less investigated, a few recent findings also identified immigrant families' difficulties in following certain health professionals' recommendations (Colby, Wang, Chhabra & Pérez-Escamilla, 2012; Griva, Ng, Loei, Mooppil, McBain & Newman, 2013), also pointing out their health-related vulnerability in terms of adherence behaviors, as it will be explored in depth in this thesis. In this case, we will particularly focus on immigrants' adherence regarding CPC, considering that these services, along with its recommendations, have a particular role on minimizing some of the identified immigrants' health-related vulnerabilities.

The relevance of Child Primary Care recommendations

CPC has the main goals of promoting and improving health, well-being and quality of life of children and their families (Direção Geral da Saúde/National Institute of Health [DGS], 2013; van Esso et al., 2010). Usually, European CPC services (Portugal included) are provided by the national health system and are integrated in the intervention of health care centers; although CPC can also coexist in private health institutions (DGS, 2013; van Esso et al., 2010). Thus, access to CPC services is universal and free for all children, which presupposes that these services may constitute the main "entrance door" in the national health system, including for immigrant families (DGS, 2009; van Esso et al., 2010).

CPC interventions are essentially expressed through periodic well-child visits, which take place at certain "key ages" of children's development (commonly known as "routine medical appointments") and that are harmonized with the national vaccination programs (DGS, 2013; Jenni, 2016). CPC health professionals nuclear team is mainly constituted by general practitioners/family doctors (or pediatricians in private services) and nurses (Jenni, 2016; van Esso et al., 2010); although there may be also an articulation with professionals of other disciplinary areas (e.g. psychologists, oral hygienists; DGS, 2013). The primary focus of well-child visits is the monitoring of children's physical and psychomotor development, mainly for early detection, supervision and referral of important health problems/alterations (DGS, 2013; Jenni, 2016). In addition, and especially in view of the increasing complexity of today's healthcare needs, these visits have been prioritizing the prevention of emotional and behavioral disorders (e.g. resultant from exposure to violence/bullying; related with substance use). Thus, CPC also proposes to identify and intervene in broader situations of family psychosocial vulnerabilities, especially those that may affect children's health and their medium or long-term quality of life (Barak et al., 2010; DGS, 2013; Kuo, Etzel, Chilton, Watson & Gorski, 2012).

Given CPC current characteristics of health promotion from a biopsychosocial perspective, these services have been identified as the main source of support and technical advice for parents or main caregivers; which emphasizes the importance of CPC health recommendations. Generally, these recommendations are related with the promotion of healthy behaviors or lifestyle practices (e.g. nutrition, hygiene care; Barak et al., 2010; DGS, 2013). These recommendations also include the so-called anticipatory guidance, i.e., prior counselling about what is expected in terms of future stages of child's development (e.g. risk related to child accidents/injuries, sleep patterns/habits). Thus, CPC recommendations not

only anticipate the most common concerns of parents/caregivers, minimizing unnecessary contact with health services, but also empower families with more adequate parental competencies (DGS, 2013; Jenni, 2016).

According to the contextualization above, children's health might depend not only of a periodic monitoring of their development but also of the extent to which their caregivers' adhere to CPC health recommendations. Moreover, considering that some of the health problems easily preventable by CPC recommendations tend to have a higher prevalence in children from ethnic minorities and/or disfavored socio-economic conditions (e.g. overweight or obesity, dental caries, asthma, mental health issues; Barak et al., 2010), promoting better adherence to CPC recommendations is of utmost importance especially for these families.

Adherence behaviors: conceptualization and measurement

In a more traditional biomedical perspective, the concept of "therapeutic adherence" is frequently associated with following a prescribed pharmacological regimen. However, some authors (e. g. Bosworth, Weinberger & Oddone, 2006; Dunbar-Jacob, Schlenk & McCall, 2012; Rodríguez-Gómez Serrano, 2006; Straub, 2012) have described adherence behaviors in a broader manner that better fits the biopsychosocial approach characterizing CPC services. In this case, adherence is represented as a "big umbrella", which includes following health professionals' recommendations related not only with a specific treatment, but also with certain health behaviors and/or lifestyle changes (e.g. diet, practice of physical activity). This more inclusive concept of adherence is shared by the World Health Organization's [WHO] definition (2003). Thus, we propose to adopt some of the premises and models that have been used to explore adherence behaviors in this broader sense.

Overall, non-adherence behaviors may have a negative impact both on the well-being of people and in the health services themselves (Byrne, 2013). Indeed, non-adherence has been consistently associated with important direct and indirect costs, not only at the individual/family level, but also in terms of health services and the general society, namely: unnecessary spending with medication, vaccines and medical appointments; need for recurrent hospitalizations and rehabilitative care; school absenteeism/lower productivity; feelings of professional devaluation on the part of health professionals and biases in clinical/pharmacological research (Bosworth et al., 2006; Dunbar-Jacob et al, 2012; Kuo et al., 2012; Levensky & O' Donohue, 2006; McNicholas, 2012; Rodríguez-Gómez Serrano, 2006). Conversely, better adherence has been related with better clinical outcomes, namely:

better general health; reduced symptoms, complications and drug resistance; delay in disease progression; fewer hospitalizations and deaths (Byrne, 2013; Dunbar-Jacob et al., 2012). Thus, promoting adherence to CPC recommendations assumes particular relevance as it may contribute to better outcomes in terms of children's health and quality of life, and may also help to minimize some of these global costs.

In general, adherence behaviors constitute as a complex and multidetermined phenomenon, especially in relation with the increasing complexity and chronicity of some of the current health issues (Byrne, 2013). Indeed, it may imply the adoption of an episodic behavior that is easily observable (i.e. taking a specific medication to control hypertension), but it may also imply the adoption of a set of more complex behaviors, sometimes assumed to be maintained over a longer period of time and that are traditionally more difficult to measure (e.g. periodically measuring blood pressure, restrict sodium intake in the diet, Levensky & O'Donohue, 2006). Moreover, we can also observe different patterns of adherence: the individual does not even begin a particular treatment/recommendation; he/she finishes it before the recommended period; he/she increases or reduces the dosages of the prescribed medication (Byrne, 2013; Dunbar-Jacob et al., 2012). This non-linearity will have implications in terms of how to better assess different adherence behaviors, including those related with CPC recommendations.

Two main groups of measures are traditionally used to assess adherence behaviors: objective measures (e.g. counting of medication, biochemical markers, medical records); subjective measures, including patients' self-reports (e.g. questionnaires, interviews, self-monitoring diaries) and, in some cases, health professionals' perceptions about patients' adherence. Considering that most people tend to overestimate their adherence behaviors (Dunbar-Jacob et al., 2012; Levensky & O' Donohue, 2006), objective measures are usually more reliable and less susceptible to social desirability (Byrne, 2013; Riekert, 2006). However, objective adherence measures usually imply higher costs or practical difficulties in accurately assessing certain preventive health behaviors (e.g. food diets, physical activity practice; Byrne, 2013; McNicholas, 2012; Riekert, 2006). Thus, subjective measures often emerge as a viable alternative to assessing adherence behaviors.

Indeed, subjective measures have been widely used both in research and in clinical practice, especially since they assess essential information to better plan research or interventions that improve adherence behaviors. First, these kind of measures (e.g. use of continuous scales) capture the adherence behaviors that may occur at different patterns and

even change across time (Byrne, 2013). Besides this, subjective measures allow assessing patients' perceptions about their own behaviors (e.g. beliefs and attitudes towards treatment or health recommendations) and, in some cases, provide important additional information about perceived barriers to non-adherence (Byrne, 2013; Bosworth et al., 2006; Levensky & O' Donohue, 2006). Accordingly, many researchers have used subjective measures of adherence, most specifically focused on pharmacological treatment adherence (Lam & Fresco, 2015; Nguyen, Caze & Cottrell, 2014). Indeed, there is an absence of validated instruments that assess adherence to preventive health behaviors, especially in what concerns the CPC recommendations.

Dominant socio-cognitive models of adherence behaviors

Health psychologists highlighted that several theoretical models have been developed that try to conceptualize why people make health decisions, including those that are related with adhering or not to health professionals' recommendations (e.g. Brannon, Feist & Updegraff, 2014; Byrne, 2013). Most of these models are generally defined as socio-cognitive models of health behavior (change) and may include the Continuum Theories or the Stage Theories of Health Behavior. The Continuum Theories were the first being developed and try to account for adherence behaviors with a single set of determinants that should be applied similarly to all individuals regardless of their levels of motivation and ability to change these behavior. The continuum theories include, for example, the Self-Efficacy Theory (Bandura, 1986), the Health Belief Model (HBM; Strecher, Champion & Rosenstock, 1997), the Self-Regulation Model (SRM; Leventhal, Leventhal & Contrada, 1998) or the Theory of Planned Behavior (TPB; Ajzen & Fishbein, 2005). Conversely, the Stage Theories classify individuals into different stages of readiness for behavior change and afterwards identify the specific determinants that may predict adherence among people in those different stages. Examples of these theories are the Precaution Adoption Process Model (Weinstein, Sandman & Blalock, 2008), the Transtheoretical Model (Prochaska, DiClemente, Velicer & Rossi, 1992) or the Health Action Process Approach (Schwarzer & Luszczynska, 2008).

Following the trends of the biomedical literature, which emphasizes the patient and disease-related characteristics as the main predictors of sub-optimal treatment adherence, the socio cognitive models highlight the proximal role of several intra-individual determinants as the main predictors of adherence behaviors (Holmes, Hughes & Morrison, 2014). Generally, these determinants refer to variables that emphasize the personal control over behavioral

choices, namely: (un)favorable attitudes towards medication; beliefs about benefits and costs/barriers for engaging in a specific treatment; recognition, representation or knowledge about illnesses and beliefs regarding disease severity; personal intentions and motivation to behave in a given fashion; behavioral control and self-efficacy; outcome expectancies (Brannon et al., 2014; Byrne, 2013). By trying to combine some of these variables, the socio-cognitive models constitute a relevant theoretical contribution in attending to the complexity of adherence behaviors. Thus, some of them have been consistently used in research that intends to better predict adherence behaviors.

A recent systematic review about the use of the socio-cognitive models to predict adherence behaviors (Holmes et al., 2014) concluded that the majority of research is related to the application of the Health Belief Model, the Theory of Planned Behavior and the Self-Regulation Model, particularly in what concerns adherence to pharmacological treatments. Nevertheless, the main conclusions of this systematic review pointed out that only single components of these socio-cognitive models accounted for the variance in adherence behaviors and only in a limited way. More specifically, self-efficacy (i.e. people's beliefs in their ability to have control over their own functioning and environment) was identified as the most consistent predictor of adherence. Also, relevant associations were found between adherence and some of other components of the socio-cognitive models: the beliefs included in the Health Belief Model (i.e. perceived barriers, susceptibility, adverse effects and benefits); beliefs about medicine necessity and concerns about medicines, from the Self-Regulation Model; perceived behavioral control, included in the Theory of Planned Behavior. Although less studied, also the illness representations are in some cases associated with adherence. Overall, these findings suggested that no individual theory or model seemed to be completely able to explain the multidimensionality and variance of adherence behaviors, and so the combination of multiple models or different theoretical approaches is relevant to better understand/predict adherence behaviors.

Another important conclusion from the evidences that applied the socio-cognitive models on predicting adherence behaviors is that different populations, even within the same treatment area, yield different results (Holmes et al., 2014). Indeed, the socio-cognitive models are described as being particularly limited in accurately accounting for the many social, economic, ethnic and demographic determinants that also affect people's health behavior. These determinants may also include the influence of interpersonal relationships, past experiences or public/organizational policies that may keep people away from the health

care system (Brannon et al., 2014). Thus, these models have important limitations regarding their ability to completely understand immigrants' adherence behaviors, as the latter have been particularly associated with low socio-economic conditions, communication problems or cultural differences, and particularly when health systems are organized to serve the dominant host society (Straub 2012).

In the same line of thought, the socio-cognitive models, by emphasizing the role of personal control over behavioral choices, are not able to broadly explain instances of the so-called "non-intentional non-adherence", i.e. non-adherence mainly determined by external and contextual constraints (Martin, Haskard-Zolnierek & DiMatteo, 2010). Indeed, non-intentional non-adherence may include an episodic forgetfulness in taking a prescribed medication, but especially an automatic behavior that is essentially adopted due to influences of the broader social, cultural or family contexts (Brannon et al., 2014; Dunbar-Jacob et al., 2012). Accordingly, further relevance should be given to psychosocial determinants that are traditionally identified as having a more distal influence on adherence behaviors (e.g. socio-economic conditions, social support, other generic beliefs; Holmes et al., 2014) and especially in what concerns immigrants' adherence. The psychosocial approach presented below highlights the particular role of some of these determinants on immigrants' adherence behaviors.

Immigrants' adherence behaviors: a psychosocial approach

Although this is an underexplored topic, non-adherence resulting from external and contextual constraints (i.e. non-intentional), may be particularly important to understand immigrants' adherence behaviors (Martin et al., 2010; Straub, 2012), especially considering that health services are mainly organized to serve the dominant host culture (Gurung, 2006). Thus, some psychosocial determinants may prove to exert a particular influence over immigrants' adherence and specially regarding pharmacological or disease treatments, where most research has been conducted. Given the multidimensionality of adherence behaviors, these psychosocial determinants may be contextualized by drawing upon different theoretical perspectives that move beyond the exclusive intra-individual approach that often underlies socio-cognitive models presented above.

According to the reflection above, the determinants that have been mostly associated with immigrants' adherence will be detailed at different, but interrelated levels of analysis, which globally include: (a) the individuals' socio-economic position (structural level); (b)

their interpersonal relationships both with significant others and with health professionals (interpersonal level); (c) the relationships that are established in the context of clinical settings contextualized by a broader intergroup perspective (intergroup level).

The role of individuals' socio-economic position

Difficult social and economic conditions have been identified as potential predictor of non-adherence (Bosworth et al., 2006; Levensky & O'Donohue, 2006; Martinet al., 2010). Indeed, socio-economic status (SES) is a classic determinant associated with several health behaviors, particularly because it can limit the access to material and social resources that are important in promoting and maintaining health (Gurung, 2006; Marmot, 2004; Straub, 2012; Taylor, Repetti, & Seeman, 1997).

Research points out that immigrants' SES can have a particular role on their adherence behaviors. First and as presented above, immigrants often have lower SES, which bears negative consequences for their overall state of health or for their access to health-care services. Besides this, and even when their access is granted, immigrants may also have some difficulties in adhering to healthcare professionals' treatment recommendations, especially because of their poverty (Colby et al., 2012; Tijerina, 2006, 2009), unemployment status (Vissman, Young, Wilkin, & Rhodes, 2013) or lack of health insurance (Consedine, 2011). In this case, poor adherence has been associated with the high costs of drugs or recommended diets (e.g. hemodialysis treatment, which presupposes a specific diet; Tijerina, 2006, 2009). Thus, psychosocial models that intend to better account for immigrants' adherence behaviors should always take in consideration their socio-economic position.

The role of interpersonal relationships

At a more interpersonal level, the lack of social resources has been identified as a potential predictor of non-adherence (Martin et al., 2010). From a psychosocial perspective, these social resources can be conceptualized as perceived social support, which includes social network's provision of psychological and material resources intended to benefit an individual's ability to cope with stressful conditions, such as disease/treatment (House, Landis, & Umberson, 2004). Thus, social support is identified as relevant to encourage people to change certain health behaviors and may also contribute to facilitate individuals' engagement in therapeutic adherence (McNicholas, 2012; Shapiro & Herivel, 2006; Taylor, 2011).

Research conducted with immigrants highlighted the relevance of informal social support on predicting their adherence behaviors. Those who perceived emotional (e.g. reinforcement) and/or instrumental (e.g. help to control a specific diet) support from their family (Griva et al., 2013), friends or other patients (Vissman et al., 2011) were more prone to adhere to prescribed treatments. In the same line of thought, a supportive relationship with health professionals has also been related with better adherence in some immigrant groups (Colby et al., 2012; Vissman et al., 2011), which reinforces the importance of formal social support.

Linked to the previously presented conclusion, and also at an interpersonal level of analysis, the inadequacy of health professionals' competencies has been identified as another potential predictor of non-adherence (Levensky & O'Donohue, 2006). More specifically, health professionals' communication skills have been highlighted as important factors, useful to better understand patients' symptoms, to clearly convey information about their disease/treatment (Martin et al., 2010; Straub, 2012) and, consequently, to determine the extent to which health recommendations are perceived and accepted (Hall & Roter, 2011; Zolnierek & DiMatteo, 2009).

One important dimension of the communication processes between immigrants and health professionals is the (dis)agreement on the spoken language (Gurung, 2006; Rodríguez-Gómez & Salas-Serrano, 2006). Indeed, language difficulties have been identified as a major communication problem related to immigrants' non-adherence (e.g. Griva et al., 2013; Hakonsen & Toverud, 2011; Vissman et al., 2011). Conversely, evidences suggested that a language concordance between patients and health professionals was related with better adherence, namely in Hispanic-Americans with diabetes (Traylor, Schmittdiel, Uratsu, Mangione, & Subramanina, 2010).

In a broader sense, individuals' satisfaction and trust in care are often used as indicators of the quality of communicative processes and interpersonal relationships with health professionals (Ha, Anat & Longnecker, 2010; Hall & Rotter, 2011; Zolnierek & DiMatteo, 2009). Thus, in the autochthonous populations, both satisfaction and trust in care have been associated with several clinical outcomes, including the adherence behaviors (Dang, Westbrook, Black, Rodriguez-Barradas & Giordano, 2013; Thom, Hall & Paulson, 2004). In the case of immigrants, few evidences also point to a positive relationship between their satisfaction or trust in care and their adherence behaviors (Taylor, La Greca, Valenzuela, Hsin & Delamater, 2016; Tucker, Marsiske, Rice, Nielson & Herman, 2011). It is interesting

to note that some of these studies draw upon theoretical approaches that highlight the role of health professionals' multicultural competencies (Tucker et al., 2011). Indeed, the communication processes in health-care settings may also bear latent cultural dimensions, which even if not directly expressed, can have an effect on adherence behaviors (Gurung, 2006; Rodríguez-Gómez & Salas-Serrano, 2006). Health professionals' multicultural competencies are not necessarily related with being born or spending a long period of time in a certain country, but instead with an increase in their socio-cultural knowledge and consciousness, which allows them to be open to recognizing and integrating such knowledge in their daily care practices (Martin et al., 2010; Rodríguez-Gómez & Salas-Serrano, 2006). Accordingly, it is essential to identify psychosocial determinants of immigrants' adherence that are conceptualized at an intergroup perspective.

The role of intergroup relations and cultural mismatches in clinical settings

Immigrants' cultural values may contrast with health professionals' recommendations or with the general cultural values of their host country (Erger & Marelich, 2004). Thus, from an intergroup perspective, immigrants' interpersonal relationships with health professionals may be influenced by possible (mis)matches in their cultural health-related ideologies. Indeed, some theoretical approaches highlighted that there are a diversity of cultural conceptualizations of health/illness, body-mind relationships, and acceptable limits of involvement in the therapeutic care (e. g. Western versus non-Western medicine), which may influence the identification of symptoms, perception of its causes and the need to seek care, as well as the therapeutic processes as a whole (Gurung, 2006; Straub, 2012). Moreover, different cultural groups may have different cultural health beliefs or practices and this mismatch may contribute to immigrants' non-adherence behaviors (Landrine & Klonoff, 2001; Martin et al., 2010; McQuaid & Landier, 2017; McNicholas, 2012).

Evidences have suggested that the abovementioned theoretical assumptions are particularly relevant to understand immigrants' adherence behaviors. For example, immigrants' negative and shared beliefs towards certain medicines (e.g. counterfeit products in their origin countries) have been associated with the rejection of some pharmacological treatments recommended in their host countries (Hakonsen & Toverud, 2011). Also immigrants' favorable beliefs regarding traditional methods widely used in their countries of origin (e.g. herbs, home treatments, folk healers) may compete with prescribed treatment plans and, consequently, account for a lower adherence to the latter (Bäckström, 2009; Chun

& Chesla, 2004; Hannan, 2015). This is most important since some authors warn about possible damage effects of certain traditional methods (e.g. interaction effects with pharmacological treatments; Hannan, 2015; Rodríguez-Gómez & Salas-Serrano, 2006). In some circumstances, the cultural symbolism of food abundance as a signal of social gathering and quality of life may have also a negative impact on adherence to restrictive diet recommendations (Bosworth et al., 2006; Chun & Chesla, 2004; Gurung, 2006).

Although less explored, some of the trends detailed above, also seem to be relevant in the Portuguese context. Some evidences highlighted that health professionals point out their lack of knowledge about immigrants' traditional practices and their influence on the delivery of care (Dias et al., 2011). Also, a national study found that Cape Verdean immigrants tend to hide from health professionals the adoption of some traditional practices of their country of origin, often for fear of their negative attitudes (Bäckström, 2009). Thus, and contrary to the culturally sensitive health care approach evidenced above, these latter findings highlight perceived experiences of prejudice and discrimination on health services. The impact of these unfavorable intergroup experiences on health behaviors are traditionally conceptualized by theoretical models on immigrants' acculturation processes, i.e. cultural and psychological changes that occur as a result of the contact between two or more different cultural groups (Berry, 2005).

Indeed, evidences suggested that immigrants' acculturation processes are associated with different indicators of physical and mental health (e.g. rates of obesity, depression) and also with adherence to some health behaviors (e.g. physical activity), but the direction of these associations have not always been consistent (Fox, Thayer & Wadhwad, 2017; Mills, Fox, Gholizadeh, Klonoff & Malcarne, 2017). A possible explanation for these inconsistencies is the wide use of socio-demographic indicators (e.g. nationality, length of stay in the host country) as *proxy* measures of acculturation or the absence of a clear definition of the acculturation concept in relation with immigrants' health behaviors (Lopez-Class, Castro & Ramirez, 2011; Schwartz & Unger, 2017; Thomson & Hoffman-Goetz, 2009). Even in the cases where a clear theoretical framework of immigrants' acculturation processes is presented, most of the approaches reflect a unidimensional view of acculturation. In these perspectives, acculturation is identified as a process in which immigrants assimilate (or not) the attitudes, values, beliefs or behaviors of the host society (Fox et al., 2017; Schwartz & Unger, 2017; Thomson & Hoffman-Goetz, 2009). Nevertheless, immigrants may maintain the cultural heritage of their country of origin and also adopt the host society's culture, which

calls for a bidimensional framework of acculturation as to better understand its relationship with immigrants' health behaviors (Mills et al., 2017; Schwartz & Unger, 2017).

According to the abovementioned references, the traditional use of *proxy measures* of acculturation or the unidimensional and reductionist view of immigrants' acculturation processes tend to neglect the complex cultural changes that may be established in the context of interpersonal relationships between immigrants and health professionals (Lopez-Class et al., 2011; Thomson & Hoffman-Goetz, 2009). Thus, these perspectives fail to address the role of the cultural (mis)matches in health-related ideologies or practices, which may have a particular influence on health behaviors. Alternatively, and based on the idea that the most typical medical encounter often involves a physician who is a member of the majority host group and a patient member of a minority group, the relationships between immigrants' acculturation orientations and their health behaviors should be viewed from an intergroup perspective (Landrine & Klonoff, 2001; Dovidio, Love, Schellhaas & Hewstone, 2017). In this case, it is assumed that there might be a certain level of discrimination or prejudice against minorities with high desire to maintain traditional health practices widely used in their heritage culture (Landrine & Klonoff, 2001; Zagefka et al., 2014). Thus, minorities' perceptions of discrimination may generate high levels of mistrust regarding the medical system, and health professionals as representatives of the majority group, hence undermining patients' willingness to accept treatments or certain health recommendations (Dovidio et al., 2017; Landrine & Klonoff, 2001; McQuaid & Landier, 2017).

Only very recent and innovative research has investigated the relationships between immigrants' acculturation orientations and their health behaviors, including adherence to medical advice, drawing upon a bidimensional theoretical framework (Whittal, Hanke & Lippke, 2017; Whittal & Lippke, 2016). In this case, immigrants' acculturation orientations are assessed in terms of their dual preferences to maintain their culture of origin and to contact with the host society, based upon one of the most influent models to assess immigrants' acculturation orientations, namely Berry's (1997) bidimensional model of immigrants' acculturation preferences. This model identifies four immigrants' acculturation orientations – integration, assimilation, separation and marginalization – that translate their positioning on two different dimensions: a) the extent to which immigrants desire (or not) to maintain their heritage culture (i.e. culture maintenance); b) the extent to which immigrants desire (or not) to contact with the host society (i.e. desire to contact). Thus, the integration preference reflects a favorable position both for the origin culture maintenance and also for

contact with the majority group. The separation preference reproduces a favorable position towards maintaining the origin culture but no desire to contact with the host society. The assimilation orientation reflects the abandonment of the origin culture while endorsing full contact with the host society. Finally, in the marginalization preference there is a rejection of the origin culture and also of contact with the host society. Usually, integration is considered as the most functional strategy, as it is related to better adapted individuals in the host society. Conversely, marginalization is associated with the worst adaptive results (Berry, 1997).

Whittal and colleagues' recent work (2016, 2017) also draws upon the theoretical contention that acculturation should be viewed as an interactionist process, which may involve changes both on immigrant and host society expectations (Bourhis, Moïse, Perreault, & Senecal, 1997). In this case, better adaptive results are not particularly associated with an integration orientation, but instead with a match or mismatch between immigrants' acculturation orientations and those adopted (Bourhis et al., 1997) or perceived to be endorsed by their host societies (Piontkowski, Rohmann & Florack, 2002). Thus, their research found that immigrants' acculturation orientations were significantly related with their reported adherence, but via their perceptions of their doctors' expectations of immigrants' acculturation orientations (i.e. regarding adopting the new culture or keeping their previous culture), and their perceived quality of care. Integration preferences were positively related to immigrants' perception that the doctor accepted the maintenance of their previous cultural values and practices, which accounted for a higher perceived quality of care and medical advice adherence. Conversely, marginalization preferences were negatively related to immigrants' perception that the doctor accepted the maintenance of their previous cultural values and practices, thus accounting for lower perceived quality of care and medical advice adherence (Whittal et al., 2017). These findings suggest that immigrants' acculturation orientations may prove to be important psychosocial determinants of immigrants' adherence behaviors, but particularly defined as a bidimensional and interactionist process of cultural changes.

Overall, this section highlights the particular relevance of several psychosocial theoretical models for the conceptualization of important determinants of immigrants' adherence behaviors. Nevertheless, the presented empirical findings have been mostly related to adherence to pharmacological treatments. There is indeed a lack of studies on immigrants' adherence to preventive health recommendations, such as those from CPC. It is then the

general goal of this thesis to bridge this theoretical and empirical gap, namely by investigating the psychosocial determinants of immigrant caregivers' adherence to Portuguese CPC recommendations. We focus on the particular perceptions of Cape Verdean and Brazilian immigrants in Portugal, since these are currently the most prominent immigrant groups in the country (SEF, 2016). Based on our general goal, a diversity of specific objectives were also defined and operationalized by four different empirical studies. These specific objectives and an overview of the conducted research now follows.

Aims and overview of the present thesis

Facing the scarce international and national evidence on immigrants' adherence, particularly related with preventive health recommendations, three aims were outlined for this thesis. The first aim of the thesis is based upon the assumption that immigrants' adherence behaviors are to some extent non-intentional and determined by psychosocial factors, often identified as having a more distal influence than intra-individual factors. Thus, the **first aim of this thesis** was to explore and identify the main psychosocial determinants of immigrant caregivers' adherence to CPC health recommendations. The **second aim of the thesis** was corollary to the first aim. As we sought to achieve the latter by using a triangulation of qualitative and quantitative methodologies, and given the absence of measures of adherence to CPC health recommendations, the **second aim** was to operationalize the specific concept of adherence to CPC health recommendations, by developing and validating an assessment instrument. Finally, drawing upon the assumption that individuals' representations of health services may influence their access and use of those services (Levesque et al., 2013; Peters, Garg, Bloom, Walker, Brieger & Rahman, 2008) and also their adherence behaviors (Byrne, 2013; Holmes et al., 2014), the **third aim of this thesis** was to investigate immigrant caregivers' social representations about the Portuguese CPC services.

Four empirical studies were conducted to provide answers to three aims of this thesis. **Study 1** is presented in **Chapter 2** and is particularly associated with the **first aim of the thesis**. By drawing upon a Grounded Theory approach, Study 1 aimed to investigate the diversity of determinants of immigrant caregivers' adherence to the CPC recommendations (study goal 1). Through a comparative analysis, it also intended to identify which of these determinants were specific or shared with Portuguese (non-immigrant) caregivers (study goal 2). Individual interviews and focus groups were conducted with 35 immigrant (Cape Verdean and Brazilian) and Portuguese caregivers, with heterogeneous socio-economic conditions and

diverse experiences in the CPC services. Data was analyzed with a grounded-theory methodology (Strauss & Corbin, 1990), and a grounded-model on the specific and shared determinants of immigrant caregivers' adherence to CPC recommendations is proposed.

Study 2 is presented in **Chapter 3** and is specifically related with the **third aim of the thesis,** as it intended to explore immigrant caregivers' representations of CPC services, which may influence their adherence to CPC recommendations. Drawing upon the Theory of Social Representations (Flick, 2000; Joffe 2002 [a)]; Joffe, 2002 [b)]), a secondary analysis of the qualitative data collected in Study 1 was performed to conduct an in-depth analysis of immigrant and Portuguese caregivers' symbolic knowledge of the general characteristics of CPC and its main activities (study goal 1). A mixed-method approach was also used to explore whether caregivers' CPC representations differed considering their immigrant and socio-economic status and also their health system/insurance (study goal 2).

Study 3 is presented in **Chapter 4** and is particularly associated with the **second aim of the thesis**. As providing further empirical support to the grounded model proposed in study 1 would require the development and validation of a measure of caregivers' adherence to CPC recommendations, Study 3 aimed to develop and validate the Child Primary Care Adherence Scale (CPC-Adherence Scale; study goal 1). Drawing upon a cross-sectional design, this study included a sample of 662 Portuguese and immigrant parents, of children aged between 2 and 6 years.

Study 4 is detailed in the **Chapter 5** and, along with study 1, is specifically related to the **first aim of the thesis**. It aimed to test a multilayered model of determinants of immigrants' adherence to CPC recommendations (study goal 1). The selection of the psychosocial determinants to be included in the model was based upon the grounded-model developed in Study 1 and the acculturation theoretical models presented above (Berry, 1997; Bourhis et al., 1997; Piontkowski, Rohmann & Florack, 2002). Based upon a cross-sectional design, this study included a sample of 123 Brazilian immigrant parents of children aged between 2 and 6 years.

Finally, after the empirical chapters, **Chapter 6** provides a critical integration and general discussion of the studies' main findings, analyzing the theoretical and practical implications of the present thesis and pointing out new directions for future research.

2. A GROUNDED THEORY ON IMMIGRANT CAREGIVERS' ADHERENCE TO CHILD PRIMARY CARE RECOMMENDATIONS

This chapter is based on the paper: Mourão, S., & Bernardes, S. F. (2019). What determines immigrant caregivers' adherence to health recommendations from child primary care services? A grounded theory approach, *Primary Health Care Research & Development*, *20*(e31), 1-11. doi: 10.1017/S146342361900003.

Abstract

Aim: To investigate the diversity and specificity of the determinants of immigrant caregivers' adherence to child primary care (CPC) health recommendations.

Background: Immigrant caregiver's adherence to CPC health recommendations is of utmost importance to minimize their children's health-related vulnerabilities. Some research has been conducted on the determinants of immigrants' access to health services, but much less is known about the determinants of their adherence to health professionals' recommendations once they get there, especially in a primary health care context. This study contributes to bridge these gaps.

Methods: Interviews and focus groups were conducted, with immigrant and non-immigrant caregivers living in Portugal (n=35), from heterogeneous socioeconomic backgrounds. Focus group and individual interview scripts were developed to explore caregivers' understanding and use of CPC services and, particularly, their adherence to CPC recommendations. A socio-demographic questionnaire was also administered. Qualitative data was analyzed using a Grounded Theory methodology.

Findings: "Adherence to CPC health recommendations" is a core and multidimensional concept. Several determinants were identified at individual, interpersonal, organizational and structural levels. Some determinants were highlighted both by immigrant and non-immigrant caregivers: valuing children's health, usefulness of recommendations, perceived health-care professionals' competence, central role of vaccination in CPC and caregivers' socio-economic conditions. Other determinants were specifically mentioned by immigrant caregivers: expectations about traditional versus pharmacological treatments, cultural mismatches in children's care practices, perceived quality of Portuguese CPC services versus CPC from countries of origin. These results provide innovative theoretical and empirical contributions to the field of primary health care and, particularly, to immigrant caregivers' adherence behaviors. Implications for research on treatment adherence in primary care contexts, the development of interventions that promote caregivers' adherence to CPC health recommendations and for child protection will be discussed.

Key-words: Child primary care, grounded theory, health recommendations, immigrants' health, treatment adherence

Introduction

Several studies have shown that immigrant children are at increased risk of developing health-related problems once they get into their host countries (e.g. Mas, Allensworth & Jones, 2010; Schmeer, 2012). Child Primary Care (CPC) services play a fundamental role in the health promotion of such vulnerable children (Kuo et al., 2012). However, evidence suggests that immigrant children, along with their caregivers, often have trouble accessing or using primary care services (Ahmed, Shommu, Rumana, Barron, Wicklum & Turin, 2016; Sime, 2014) and also in adhering to CPC health recommendations (Gimeno-Feliu, Armesto-Gómez, Macipe-Costa & Magallón-Botaya, 2009; Heerman et al., 2016; Kirkpatrick, Dodd, Reedy & Krebs-Smith, 2012). Thus, it is of paramount importance to promote a better engagement of immigrant families with CPC and contribute to decrease their vulnerability regarding non-adherence to health recommendations.

Although much research has been conducted on the determinants of immigrants' access to health services (Dias et al., 2008, 2018; Kalich et al., 2016; Oliveira & Gomes, 2018; Wafula & Snipes, 2014), there is much less research on the determinants of their adherence to health professionals' recommendations once they get there, especially in a primary care context. Thus, the general goal of this study was to contribute to bridge these gaps by investigating the diversity and specificity of the determinants of immigrant caregivers' adherence to CPC health recommendations.

The relevance of adhering to CPC health recommendations

CPC has an essential role in promoting health equity by buffering the impact of (lower) socio-economic conditions on children's health. This is so because most European CPC (Portuguese included) is universal and free to all children (DGS, 2009; van Esso et al., 2010) and plays a crucial role in the prevention and early detection of health-related problems with higher prevalence among immigrant and/or low-income children (e.g. overweight/obesity, dental caries, mental health issues).

CPC are the primary technical source of knowledge and advice for parents (Barak et al., 2010). A preventive approach through anticipatory guidance is commonly incorporated into well-child visits; parents are informed of what to expect at the next stage of their child's development and given recommendations about health issues (e.g. nutrition, injury prevention, medication). These recommendations are often provided in conjunction with regular health screenings, immunization schedules, developmental surveillance and family

psycho-social assessment. Thus, CPC recommendations assume in nowadays services a great relevance (DGS, 2013; Garg et al., 2017; Jenni, 2016) and children's health might depend on the degree to which their families adhere to them, i.e., their level of therapeutic adherence (Dunbar-Jacob et al., 2012; Straub, 2012). Consequently, promoting caregivers' adherence to CPC recommendations is vital for the protection of (immigrant) children's health.

Indeed, many studies show that poor therapeutic adherence is often associated with worse health, faster illness progression and recurrent hospitalizations and work/school absenteeism (Dunbar-Jacob et al., 2012; Kuo et al., 2012; Rodríguez-Gómez & Salas-Serrano 2006;). Thus, adhering to CPC recommendations is important not only to the general population, but particularly to immigrants and their children given their increased health-related vulnerabilities.

Determinants of immigrant caregivers' adherence to CPC health recommendations

To improve immigrant caregivers' therapeutic adherence behaviour a grasp of its main driving factors is needed. Mainstream research on treatment adherence, mostly drawing upon socio-cognitive models of health behaviour change (e.g. Conner & Norman 2005), has focused on intentional non-adherence, i.e. the conscious decisions and/or lack of motivation to follow health professionals' recommendations, and often disregarding the influence of social and contextual variables (Brannon et al., 2014; Dunbar-Jacob et al., 2012). Nevertheless, unintentional non-adherence, i.e., non-adherence resulting from external and contextual constraints, may be particularly important to understand immigrants' adherence behaviours (Martin et al., 2010).

Low socio-economic conditions, problems of communication and cultural differences have been consistently identified as important barriers to immigrants' non-adherence, particularly when health systems are organized to serve the dominant culture (Mourão & Bernardes, 2014; Straub, 2012). Thus, ignoring the powerful influence of such contextual factors and attributing immigrants' non-adherence exclusively to individual factors is, to a certain extent, "blaming the victim". As such, it is our contention that dominant socio-cognitive models on therapeutic adherence do not seem to be enough to account for immigrants' treatment adherence behaviours, and an intensive analysis of the specific contextual factors associated to such pattern of behaviours is in need.

It should also be noted that, as most studies on treatment adherence have been focusing on non-immigrant adults' pharmacological treatment adherence (e.g. Colby et al., 2012;

Robbins et al., 2012), very little is known on the determinants of immigrant (and non-immigrant) families' adherence to CPC recommendations. Consequently, the first aim of this study was to investigate the diversity of determinants of immigrant caregivers' adherence to CPC recommendations. We also aimed at undertaking a comparative analysis between the determinants of immigrant and non-immigrant caregivers' adherence to CPC recommendations, as to be able to pinpoint some common and specific determinants of immigrant caregivers' therapeutic adherence.

To achieve these goals we conducted a grounded-theory study involving Cape Verdean and Brazilian immigrants in Portugal, as these are currently the most prominent immigrant groups in the country (SEF, 2016). Like in other countries, if much research has been conducted on the determinants of immigrants' access to Portuguese health services (Dias et al., 2008, 2018; Oliveira & Gomes, 2018), the evidence on what determines Cape Verdean and Brazilian caregivers' adherence to CPC recommendation is, to the best of our knowledge, non-existent.

Methods

Data Collection

Immigrant (Cape Verdean and Brazilian) and Portuguese caregivers participated in this study. All caregivers were recruited in the Lisbon Metropolitan Area that, according to the Portuguese Immigration and Borders Service, presents one of the highest rates of immigrants in the country (SEF, 2016).

Following Strauss and Corbin's (1990) guidelines for grounded-theory development, this study included two waves of data collection, so that the data collected and analyzed in the first wave could partially inform the second wave of data collection (e.g. development of the interview script). In the first wave, 5 focus groups (FG) were conducted, with a maximum of 6 participants each (Krueger & Casey 2000). Sessions were homogeneous in terms of participants' nationalities; i.e. all Cape Verdean or all Brazilian. As it can be seen in Table 1, the FG script included general stimuli questions to tap into immigrants' experiences with CPC in Portugal and in their countries of origin.

Table 1. Semi-structured focus group and individual interview scripts

Focus Group Script	**Individual Interview Script**
1. Introduction 1.1 Presentation and acknowledgements 1.2 Information on the study's goals, participation rules and ethical issues 1.3 Signature of written informed consent	
2. Main stimulus questions *2.1 What comes to your mind when you think about your child's routine consultations in Portugal? or Tell me about your experience in these consultations.* *2.2 What do other Cape Verdean/Brazilian caregivers share with you about their experiences in these routine consultations (in Portugal)?* *2.3 Please tell me about your experiences with these kinds of consultations in Cape Verde/Brazil.*	2. Main questions for immigrant and non-immigrant caregivers Understanding and experiences with Portuguese CPC services *2.1 How do you usually call these visits? What do you think is their purpose?* *2.2 Please recall the first time you went to a child's routine consultation. Tell me about this experience.* *2.3 Please describe a typical visit: Where do these visits take place? Who is involved? What happens in these visits?* *2.4 Please tell me about an experience that was particularly important/difficult for you in these consultations.* Adherence to Portuguese CPC recommendations *2.5 Please tell me about what is generally recommended/advised in these consultations.* *2.6 To which extent do you consider these recommendations/advices useful?* *2.7 To which extent do you usually follow these recommendations? If not, which alternatives do you use? How?*
3. Alternative topics for exploration 3.1 Positive and negative experiences in CPC services 3.2 Similarities and differences between Portuguese and Cape Verdean/Brazilian CPC services	3. Specific questions for immigrant caregivers *3.1 What do other Cape Verdean/Brazilian caregivers share with you about their experiences in these routine consultations?* *3.2 Please tell me about your experiences with these kinds of consultations in Cape Verde/Brazil.*
4. Debriefing 4.1 Overview of the main topics explored and their fit to caregivers' lived experiences with CPC 4.2 Asking about any uncovered topics for discussion 4.3 Caregivers fill out the individual socio-demographic questionnaires 4.4 Thanks and final acknowledgments	

Theoretical sampling (Strauss & Corbin, 1990) was used for the second wave of data collection, with the following inclusion criteria: immigrant caregivers from Cape Verde or Brazil; with children aged between 3 months and 5 years. In addition, caregivers' socio-economic conditions (e.g. years of education, profession, household income) and their use of public/private health systems was considered to ensure a more heterogeneous pool of participants. Portuguese caregivers, with similar socio-economic status, were also included in this wave of data collection as to allow us to identify, among the determinants of adherence to

CPC health recommendations, the ones that were shared by immigrant and non-immigrant caregivers and the ones that were exclusively mentioned by immigrant caregivers.

In total, 17 semi-structured individual interviews were conducted. A semi-structured interview script was developed to allow an in depth analysis of themes/categories that had previously emerged in the FG (Strauss & Corbin, 1990). The structure of this script was based on similar studies focusing on immigrants' health-related issues (e.g. Kong & Hsieh, 2012) and on the basic standards for interview script construction (e.g. Creswell, 2007). A detailed description of the individual interview script is presented in Table 1.

All FG and interviews were recorded in audio format, and subsequently verbatim transcribed. The data collection stopped when saturation of information was reached.

After each FG and individual interview, participants were asked to individually fill out a brief questionnaire that collected their socio-demographic information (e.g. sex, age, marital status, years of education) and, in the case of immigrants, information on their time and legal status in Portugal (please see questionnaire in appendix).

Data Analysis

Qualitative data analysis was based on a grounded-theory methodology, namely, on three different coding procedures: open, axial and selective (Strauss & Corbin, 1990). All qualitative data collected in waves one and two was analyzed following the same methodological procedures. Indeed, data collection and data analysis were an iterative process, but for the sake of clarity they are sequentially described below.

We started with a descriptive open coding: analyzing phrase by phrase and categorizing each unit of meaning as near as possible to participants' speeches. Afterwards, we proceeded to a more conceptual open coding: categories representing a similar phenomenon were aggregated in more encompassing/abstract categories. For each conceptual category (e.g. infant feeding), properties (e.g. introduction of food in children's diet) and their respective dimensions (e.g. gradual versus random) were identified, whenever possible.

Axial coding was followed, i.e. to recognize interrelations between categories/concepts in participants' speeches. Whenever possible, Strauss and Corbins' coding paradigm was used for the identification of the most important axial categories. Each axial category represents a specific type of relationship with the principal phenomenon, in this case, adherence to CPC recommendations. Applying the coding paradigm to linguistic peculiarities in the data (e.g. "because", "since", "as result of") the following main axial categories were

identified: (1) Causal conditions, which contribute to the occurrence or development of the principal phenomenon. These causal conditions were coded as "determinants of adherence" and varied in the extent to which their influence on adherence was direct (proximal determinants) or via other concepts (distal determinants); and (2) Intervening conditions, which represent the social or cultural environment where the principal phenomenon occurs (e.g. caregivers' cultural background or socio-economic conditions).

Finally, a selective coding process took place and an integrated/overarching model on the determinants of caregivers' adherence to CPC recommendations was developed, which is depicted in Figure 1. All data analysis was performed using the Atlas.Ti 6.2 software.

Quality criteria. Several criteria were used to ensure the quality of the qualitative data analysis and its results (Charmaz, 2006; Strauss & Corbin, 1990):

(a) Adequacy of references – all FG and interviews were audio taped and verbatim transcribed.

(b) Triangulation of participants – who had heterogeneous characteristics and diverse experiences in CPC.

(c) Triangulation of researchers – a second researcher was present in the FG to register important information about participants and to promote reflexivity. Additionally, the second author regularly analyzed the results and discrepancies in the interpretation of data were resolved by consensus.

(d) Developing memos and diagrams – several conceptual dated memos were created, explaining decisions about the development of categories over time. Operational memos were also produced, indicating what needed to be further explored in the following data collection moments. Finally, visual diagrams were developed, representing the associations between concepts.

(e) Peer and external consultation – two independent researchers analyzed the final definitions of categories, diagrams and associated speeches. One had previous experience in grounded-theory analysis and the other in "cultural issues in health". Lastly, the process of analysis and preliminary results were presented/discussed in two research groups (one of them dedicated to grounded-theory analysis).

Finally, it should be noted that descriptive and bivariate statistical analyses (t-test, ANOVAS, Fisher's Exact Test) were conducted to describe the sample of participants and to

compare the socio-demographic characteristics of Portuguese, Cape Verdean and Brazilian Caregivers. These analyses were conducted with IBM-SPSS Statistics 24.0.

Procedure

This study was approved by the Institutional Review Board of ISCTE- University Institute of Lisbon. The recruitment process started by contacting key-institutions in the Lisbon metropolitan area (e.g. immigrant associations, National Center for Immigrant Support) as to identify eligible participants (Yin, 2011). Caregivers (e.g., mothers, fathers, grandparents, legal guardians) who generally took the responsibility of taking their child/children to CPC services were requested to collaborate on a study about their experiences with child well-visits. Those who accepted to participate received a formal invitation one week before their FG/interview (Morgan & Krueger, 1998). At the end of each FG/interview, a "snowball" strategy was also used (Yin, 2011). FG/interviews were conducted in neutral and comfortable spaces (e.g. rooms in immigrant associations, participants' households; Krueger & Casey, 2000)

As presented in Table 1, both scripts started by providing information on the study's goals and participation rules (e.g. freedom to stop participation at any time, without any personal implications). All participants signed a written consent, where the confidentiality and anonymity of data was guaranteed and they were informed about their voluntary participation. After the FG/interviews, participants individually filled out the socio-demographic questionnaire (in appendix).

Results

Participants

In the first wave of data collection, 13 Cape Verdean (68.4%) and 6 Brazilian immigrant mothers (31.6%) participated in the study (n = 19). Participants' ages ranged between 22 to 41 years old (M = 28.7, SD = 6.2), they had arrived Portugal on average 7.3 years ago (SD = 4.8) and most of them (73.7%) had kept their original nationality. They had between 1 to 7 children, with diverse ages. On average, they had a basic school level (M = 9.8 years, SD = 3.3), the majority were employed (66.7%) as house/cleaning maids (55.6%) and half of them had a monthly household income of 485€ or less. The majority (94.1%) used the public health system and only a Brazilian mother reported using private services. As

compared to Cape Verdeans, Brazilian mothers reported higher socio-economic conditions: more years of education,
t (15.796) = -3.503, p = 0.003; higher monthly household income, p = 0.002, Fisher's Exact Test; and better employment status (all Brazilian caregivers were employed while half of the Cape Verdean caregivers were unemployed), p = 0.054, Fisher's Exact Test.

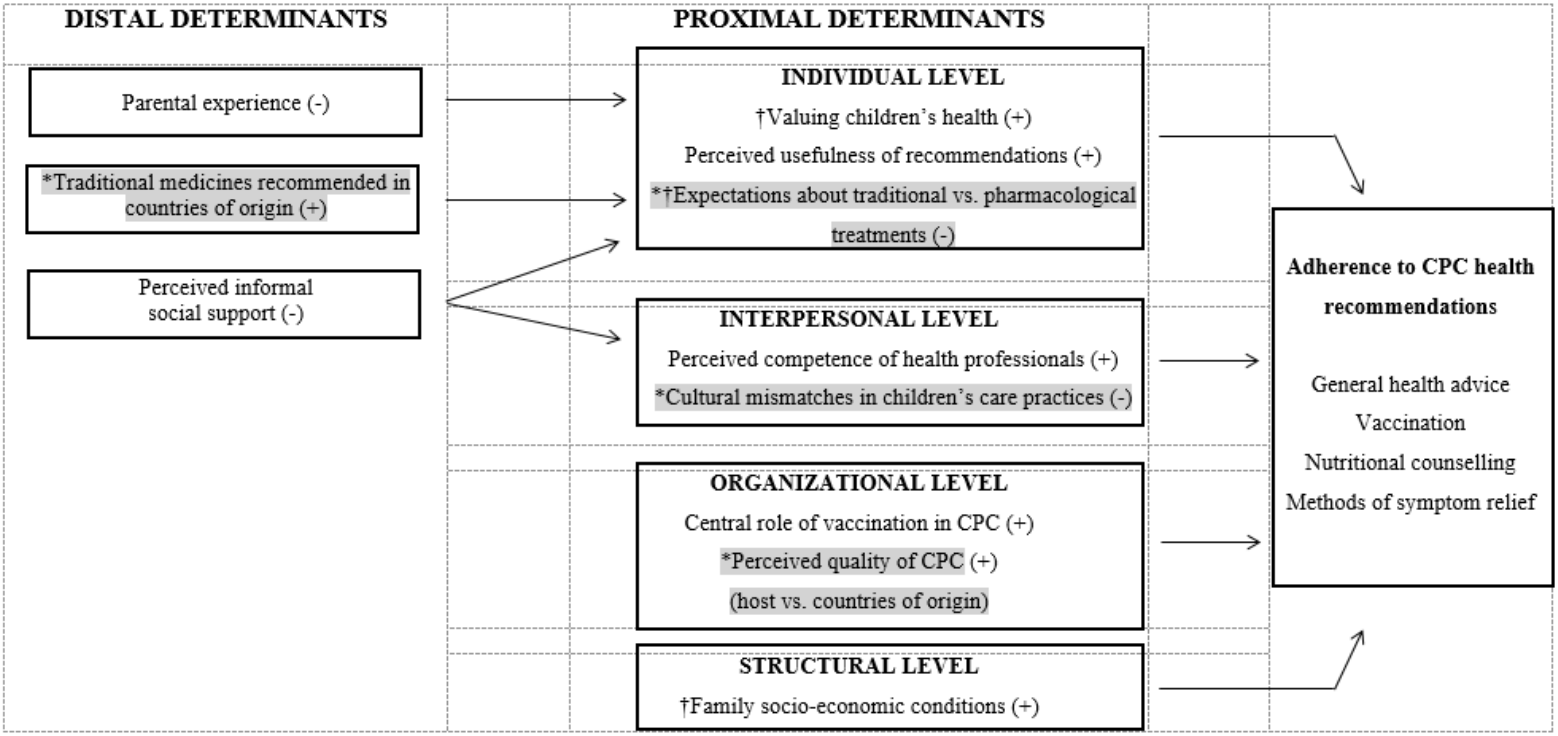
Sixteen mothers participated in the second wave of data collection: 4 Cape Verdean, 7 Brazilian and 5 Portuguese; whose ages ranged between 18 to 48 years old (M = 30.3, SD = 7.3). On average, they had around twelve years of education (M = 11.7 years, SD = 4.0) and half of them were employed. They had heterogeneous professions (e.g. cleaning/housemaid, store clerk, teacher) and their monthly household incomes were diverse ranging from less than 485€ (37.5%) to more than 1500€ (12.5%). Immigrants had arrived Portugal on average 10.7 years ago (SD = 4.8) and half of them had national/double citizenship. One Portuguese grandmother was also interviewed, complementing the information obtained from the mother. Again, the majority of caregivers (68.8%) used the public health system, although 4 immigrant mothers (3 of them Brazilian) and 1 Portuguese reported using private health services. Cape Verdean, Brazilian and Portuguese mothers shared similar socio-economic conditions, particularly in what concerns their years of education, F (2, 13) = 0.630, p = 0.548, and employment status, p = 0.742, Fisher's Exact Test.

It should be noted that participants with secondary or higher education degrees, employed, with intermediary or specialized professions (e.g. hairdresser, sociologist) and higher household incomes were included in the higher socio-economic status (SES) category. All the remaining were included in the lower SES category.

What determines (immigrant) caregivers' adherence to CPC health recommendations?

The core concept of "Adherence to CPC Recommendations" is complex and multidimensional (see Figure 1). It includes reported adherence to general health advices (i.e. non-specified), but also related with specific recommendations: vaccination, nutritional counselling and methods of symptom relief.

Figure 1. A grounded theory on the determinants of (immigrant) caregivers' adherence to CPC health recommendations



Note. (+) = Positive association; (-) = Negative association; *= Specific to immigrants; †= Specific to lower SES.

The main determinants of adherence to CPC recommendations are represented in Figure 1. Determinants were categorized as proximal or distal. Proximal determinants refer to factors that are more directly associated (positively or negatively) with caregivers' adherence. Distal determinants include factors that, by being positively or negatively associated with the proximal determinants, may be indirectly related with adherence.

Proximal determinants were also categorized at different levels of analysis: individual, interpersonal, organizational and structural. Individual determinants refer to caregivers' expectations or beliefs about their child's health or CPC recommendations. Interpersonal determinants refer to caregivers' perceptions of their relationship with health-care professionals. Organizational determinants refer to caregivers' perceptions of the organization/structure of the CPC services (e.g. quality of assistance). Finally, structural determinants relate to caregivers' socio-economic conditions.

Some of these determinants were reported both by immigrants and non-immigrants (henceforth, shared determinants), but immigrants specifically highlighted others (henceforth,

specific determinants; gray shaded in Figure 1). We will begin by describing the shared determinants and afterwards the specific determinants.

Individual shared determinants: valuing children's health and perceived usefulness of recommendations. Caregivers, particularly from lower SES, reported adhering to CPC recommendations because they value their children's wellbeing and their healthy development, and also because they recognized the importance of CPC recommendations to their children's health. This is mostly relevant regarding general health advices, vaccination or nutritional counselling.

The perceived usefulness of CPC recommendations was of utmost importance for first time mothers (versus mother with multiple children; distal determinant in Figure 1), because they were less experienced and reported more difficulties with children's care. It was also associated with caregivers' perceptions of informal social support in Portugal (also a distal determinant in Figure 1). Those who reported less instrumental or emotional support availability from family or friends, reported higher usefulness of nutritional counseling as it compensated for the absence of perceived support in child care:

INT (Interviewer): And, usually, do these recommendations make sense to you? Do you usually follow them?

I3 (Interviewee 3): To me… Always! (...) immigrants, here, don't have their family nearby, isn't it? So, I don't have my mother or my mother-in-law nearby, nobody... (...) I also don't usually call to ask "What can I do now?" So, something that is said... (...) that is shared (...) I try to follow it strictly (...) (interview; Brazilian mother; lower SES; public health system)

Interpersonal shared determinants: perceived competence of health professionals. Caregivers' perceptions of health professionals as competent, both technically (e.g. diagnostic skills) and relationally (e.g. availability or empathy), also influenced their adherence to CPC recommendations. This was particularly relevant to adherence to general health advices, nutritional counselling and to recommendations of methods of symptom relief.

Once more, caregivers' perceptions of informal social support in Portugal played a role as a distal determinant of adherence to CPC recommendations (as presented in Figure 1). Those who perceived higher availability of support from family/friends reported lower perceived competence of health professionals:

P2 (FG participant 2): (...) honestly, my son has a scheduled surgery (...) but I don't want to do it here! (...) Especially with his family doctor because… I am the one who does the diagnosis (...) Our mothers, our grandmothers are kind of doctors... you know? (...) So…when my mum laid him down to change his diaper, he pressed his own belly and she said "He has a hernia" (...) then I went with him several times to the doctor, he examined his belly (...) P3 (FG participant 3): Don't you think that he should do an ultrasound or something like that? P2: (...) But here they don't do that! He is just doing it, because (...) I asked... (2nd FG; Brazilian mothers; higher SES; public health system).

Organizational shared determinants: central role of vaccination in CPC. Several caregivers perceived the vaccination as a main function of CPC:

P5: I*n the routine consultations I always go to the vaccination room* (1st FG; Cape Verdean mothers; lower SES; public health system).

I4: (...) he goes to the health care center to be vaccinated (interview; Brazilian mother; lower SES; public health system).

This recognition was positively associated with their adherence to recommended vaccines; especially those that were paid by the national health system.

Structural shared determinants: family socio-economic conditions. Caregivers who reported lower socio-economic conditions also reported lower adherence to vaccination recommendations; especially the ones referring to vaccines not paid by the national health system, which needed to be bought by the caregivers. Caregivers also stressed the relation between their lower socio-economic conditions and their adherence to nutritional counselling:

P6: I gave everything to my daughter (...) I don't have money to buy those kind of things... It is expensive, expensive! (...) I have to give her rice, soup... Here, when she is one year and eight months you have to give them everything... I'm poor, I have to give her everything! (1st FG; Cape Verdean mothers; lower SES; public health system).

Thus, caregivers' perceived favorable socio-economic conditions of their families influenced their adherence to CPC recommendations, particularly to vaccination and nutritional counselling. Again, the reference to this determinant of adherence to CPC recommendations was particularly stressed by caregivers of lower SES.

Specific individual determinants: expectations about traditional versus pharmacological treatments. Cape Verdean caregivers of lower SES particularly believed that recommended pharmacological treatments to manage their children's common symptoms (e.g. cough) were more ineffective or prejudicial than traditional medicines from their countries of origin (i.e. didn't relieve symptoms appropriately or had habituation effects). When they expressed these expectations they reported lower adherence to recommended pharmacological methods and increased use of traditional medicines (e.g. massage with olive oil to relieve baby cramps). However, they hid these practices from health professionals because they feared these would not be accepted:

INT: Have you already told someone at your health care center about these methods? P1: No. INT: (...) Why not? (...) P5: For fear... (...) P2: They will not accept this... And they will scold us "(...) you shouldn't do it (...) It could hurt the child..." P4: They can even call the police... Especially now that it is possible to take children from their parents... (...) If you tell the doctor that your child has certain symptoms and that you made a home-medicine (...) s/he will write everything down, as a proof... (1st FG; Cape Verdean mothers; lower SES; public health system).

Moreover, these traditional methods were considered as more effective and beneficial than the recommended pharmacological treatments particularly when lay people or health professionals from caregivers' country of origin consistently recommended them (distal determinant in Figure 1):

P1: My daughter had a cough... (...) So, I bought that medicine in the pharmacy and the cough didn't stop. Then, an older woman (...) gave me a plant to make an infusion (...) I gave her the tea and three days after that her cough stopped (...) These are traditional medicines (...) that aren't bad for our body... P2: We make our medicines, traditional from Cape Verde, and it works! (1st FG; Cape Verdean mothers; lower SES; public health system).

Specific interpersonal determinants: cultural mismatches in children's care practices. Besides the cultural differences in methods of symptom relief, cultural differences regarding infant feeding practices between Portugal and immigrants' countries of origin were also reported. These cultural differences included mismatches in the order of introduction of food in children's diet (gradual in Portugal versus random in countries of origin) and in the type of food fed to children. Immigrants who perceived these cultural mismatches reported lower adherence to nutritional counselling:

P2: They [health professionals] talk about introducing soup, after a while the meat (...) In Brazil this doesn't exist, right? Children eat soup when they are two months old... But this is also a cultural issue, because we don't have the habit of eating soup before the main dish. (...) We eat rice, beans, meat, fish... P3: We also eat guava... P2: I didn't make the soup as the doctor recommended; I made it by my own. (2nd FG; Brazilian mothers; higher SES; private health service).

In these cases, instead of adhering to CPC nutritional counselling, immigrants adhered to what was recommended in their countries of origin and, once more, hid it from health professionals:

P5: Cachupa [a traditional Cape Verdean stew], that is our food (...) with four months old. But for the doctor, only now she could eat it. P1: I eat it since I was a baby... P5: Something that they tell me that is only from one year old on... (...) they ask me "Is she eating it?" I say "No." "Oh, very good! From now on she can eat it." I can't say "Well, she is already eating it." (1st FG; Cape Verdean mothers; lower SES; public health system).

As regards cultural mismatches in methods of symptom relief, immigrants reported divergences between the pharmacological treatments recommended in Portugal and traditional medicines from Cape Verde (e.g. tea). Similarly, immigrants who perceived these mismatches reported lower adherence to CPC recommendations. Instead, they adhered to what was recommended in their country of origin and hid it from health professionals.

Specific organizational determinants: perceived quality of services (host versus countries of origin). Immigrants' adherence to CPC recommendations was also associated with their perceptions of the quality of CPC in Portugal; namely in what concerned its structure, functioning and staff. Those who perceived better quality of Portuguese services, as compared to services of their countries of origin, reported higher adherence to general health advices and methods of symptom relief:

P2: And another thing that I noticed is the (...) nurse's availability, who followed my pregnancy and after. She gave me her personal telephone number, in case I needed something, I could call her... In Brazil, something like that doesn't exist. When will a nurse give you her personal telephone number? Never. If you want to know something, you have to go to the hospital (...) (3rd FG; Brazilian mothers; lower SES; public health system).

Discussion

The aims of this study were to investigate the diversity of determinants of immigrant caregivers' adherence to CPC health recommendations and to identify which of those determinants were specific to immigrant caregivers or shared by all caregivers (immigrants and non-immigrants). In line with the general concept of therapeutic adherence, our core concept - adherence to CPC health recommendations (Figure 1) - was complex and multidimensional (Brannon et al., 2014; Dunbar-Jacob et al., 2012; Straub, 2012). It included self-reported adherence to pharmacological recommendations (i.e. vaccination and pharmacological treatments for symptom relief), but also recommendations regarding health behaviors and lifestyle practices (i.e. general health advices, nutritional counselling and traditional methods of symptom relief). The identification of these specific recommendations speaks to their centrality for caregivers. Indeed, although other kinds of recommendations are provided by Portuguese CPC (DGS 2013; e.g. prevention of childhood accidents), these were not mentioned by the participants. This may indicate that they either did not recognize them as relevant or that health professionals are not explicitly and consistently recommending them.

Our findings also suggest that caregivers' adherence is determined by multiple factors. These determinants may have a more direct or indirect influence (proximal versus distal determinants). They may also be facilitators or barriers to adherence behaviors. Such determinants were also identified at different levels of analysis: individual, interpersonal, organizational and structural, which suggests that to fully understand immigrant caregivers' adherence behaviors it is paramount to consider the mutual relation between individual and contextual factors.

Individual determinants

At an individual level, some determinants were identified as shared facilitators of caregivers' adherence (valuing children's health, perceived usefulness of CPC recommendations) and others as specific barriers to immigrant caregivers' adherence (expectations of traditional versus pharmacological methods). Overall, these facilitators and barriers reflect what is commonly referred to in many socio-cognitive models as outcome expectancies (e.g. Health Belief Model, Self-Efficacy Theory, Theory of Planned Behavior; for a review see Brannon et al., 2014), i.e., individuals' beliefs regarding the extent to which their adherence behaviors will or will not produce valuable outcomes. Also, the lack of

previous parental experience was identified as a distal and shared facilitator. First-time mothers reported lower self-efficacy regarding children's care practices and, consequently, reported higher adherence to CPC recommendations.

In sum, in line with the underpinnings of many socio-cognitive models of health behavior change, perceived self-efficacy, along with outcome expectancies, are main predictors of intentional, deliberate and purposeful actions (Dunbar-Jacob et al., 2012; Martin et al., 2010). However, our data clearly shows that several interpersonal, organizational, cultural and societal determinants, which go beyond the individual's control, must also be considered to account for caregivers' adherence behaviors.

Interpersonal determinants

At the interpersonal level, health professionals' technical and relational competence constituted a shared adherence facilitator. This is consistent with findings from recent reviews and meta-analysis showing that trust in health professionals and satisfaction with technical and/or relational care play an important role in accounting for individuals' treatment adherence in general (Hall & Roter, 2011; Hillen, de Haes & Smets, 2011; Jack et al., 2010; O' Rourke & O' Brien, 2017; Sendt, Tracy & Bhattacharyya, 2015; Zolnierek & DiMatteo 2009).

Our findings also show, however, that a relationship characterized by cultural mismatches in child care practices is a specific barrier to immigrant caregivers' adherence. More specifically, immigrant caregivers reported divergences between some biomedical practices (e.g. pharmacological methods of symptom relief and rigid nutritional recommendations) and more traditional, folk practices; the latter being perceived as more effective and less harmful than the former. Again, our findings are in line with previous research showing that immigrant mothers tend to use and believe in the effectiveness of alternative health practices in infant care (e.g. herbal remedies) that have been passed from generation to generation and are deeply embedded in their culture (Hannan, 2015). When such practices and beliefs are perceived as being in conflict with health professionals' recommendations, however, may negatively influence the delivery of care and adherence behaviors. More specifically, these perceived mismatches along with high levels of mistrust in health professionals' ability to accept and accommodate cultural specificities may be leading immigrant caregivers to hide their folk practices, while at the same time not adhering to CPC recommendations.

These findings are not surprising as physicians' clinical encounters with ethnic minority patients are also often influenced by racial bias, stereotyping or uncertainty (Drewniak et al., 2017; Hall et al., 2015). This is particularly striking in clinical encounters involving immigrants with lower levels of integration, because they feel more discrimination and prejudice compared with their more integrated counterparts (Landrine & Klonoff, 2001; Zagefka et al., 2014). These perceptions of discrimination generate high levels of mistrust of the medical system, undermining immigrants' adherence to physicians' recommendations (Dovidio et al., 2017; Landrine & Klonoff, 2001; McQuaid & Landier, 2017). Such perceptions are also serious barriers to cultural sensitivity in clinical encounters. Health professionals' nonjudgmental approach towards immigrants' alternative health practices is essential to an open and effective communication, which is crucial to safer and more informed clinical decisions regarding children's care (Hannan, 2015).

Still at an interpersonal level, our findings showed that relationships with significant others can also play a (distal) role on caregivers' adherence to CPC recommendations. Indeed, social support has been consistently associated with higher adherence to preventive behaviors and medical regimens, contributing to better health outcomes (Sendt et al., 2015; Taylor, 2011). Conversely, our findings suggest that perceived social support is a shared barrier to caregivers' adherence to CPC health recommendations, especially when significant others' health advices contradict health professionals' recommendations by proposing alternative care practices (e.g., folk medicines). Although our findings seem to be at odds with mainstream research on social support and treatment adherence, recent studies have indeed suggested that belonging or not to an ethnic minority group may moderate the association between social support and treatment adherence (Magrin et al., 2015). More specifically, among immigrants, higher perceived social support from significant others may bear a negative influence on treatment adherence, by being less aligned with health professionals' recommendations.

Organizational determinants

At an organizational level, the fact that vaccination was perceived as CPC services main function was a shared facilitator of caregivers' adherence. This generalized perception can be playing an important part in achieving good Portuguese vaccination rates, which contributed to eradicate some preventable diseases (DGS, 2015). Nevertheless, this perception is at odds with information included in Portuguese CPC technical documents (DGS, 2013), which depict vaccination as one among several other activities (e.g. promotion of a healthy

psychomotor development). This again may suggest that health professionals are not emphasizing enough other relevant primary care practices and/or that they were not recognized as relevant by caregivers. Thus, regardless of the role of health professionals in raising awareness of CPC services and activities, it is also relevant to reflect on the role of caregivers' representations of CPC services/activities on their adherence to its recommendations. Considering immigrant families, the construction of these representations may not be dissociated from their previous experiences with the health services of their countries of origin (Almeida et al., 2014; Garg et al., 2017). Indeed, immigrants' lower familiarity with the health system in their host countries, which contributes to their lower access to health care (Cheng et al., 2015; Terraza-Núñez et al., 2010), may also influence their adherence behaviors (Llop-Gironés et al., 2014).

Structural determinants

At a structural level, caregivers' low SES was identified as a shared barrier of adherence to CPC health recommendations. This finding is in line with previous studies on adherence to medical treatments or life style changes (Colby et al., 2012; Picorelli et al., 2014; Sendt et al., 2015). Thus, although many individuals from minority ethnic groups most often present lower socio-economic conditions (Morrison & Bennet, 2009; Straub, 2012), caregivers' SES is a determinant of adherence that may go over and beyond the influence of immigrant status.

Limitations and implications for future research

Some limitations should be pointed out to this study. Despite all efforts to ensure the presence of a large number of participants in the FG (Morgan & Krueger, 1998), two FG were conducted with less than four participants, which may have curtailed the richness and diversity of the collected data. Also, all data was collected by the first author, who is a non-immigrant Portuguese and, hence, a member of the majority group. This may have increased the likelihood of immigrants' discourses being influenced by social/cultural desirability. We tried to minimize this effect by collecting data in neutral spaces, which were not in any way related with Portuguese health services. Participants were also informed that the researchers played no direct role in the national health system. Nonetheless, future research may also involve cultural mediators or members from the immigrant communities in the data collection procedures.

Another limitation was related with the fact that most caregivers who accepted to participate in the study were mothers, despite this is not a specific inclusion criteria. Although this is not entirely surprising, as mothers are more often recognized as the main caregivers and users of services (e.g. Andrade, 2008), ends up to limit our knowledge about the adherence behaviors of other types of caregivers, namely fathers/grandfathers. Thus, the inclusion of their perspectives should therefore be a topic of concern to further research. Finally, our proposed grounded-theory is exclusively based on (immigrant) caregivers' perspectives. Future studies focusing on CPC health-care professionals' views are also needed to complement our findings.

Despite these limitations, this study has relevant theoretical and practical implications. To the best of our knowledge, this is one of the first studies identifying the determinants of (immigrant) caregivers' adherence to CPC health recommendations in general, and in Portugal, in particular. Our proposed grounded-theory on (immigrant) caregivers' adherence to CPC highlights the need of integration between the classical socio-cognitive theories of health behavior (change) and theories that account for the impact of social and cultural dimensions on adherence behaviors. First, such integrative efforts may increase socio-cognitive models' predictive ability, which are not always able to account for ethnic and socio-economic differences in adherence behaviors (Brannon et al., 2014; Landrine & Klonoff, 2001). Moreover, it stimulates reflections on the underexplored concept of non-intentional non-adherence (Dunbar-Jacob et al., 2012; Martin et al., 2010), which provides a better framework to understand immigrant caregivers' experiences. Despite its contributions, our proposed integrative model will benefit from further empirical support, namely, the use of quantitative methodologies to disentangle shared and specific determinants with respect to the effects of SES and immigrant status on adherence to CPC health recommendations.

Our findings also bear implications to clinical practice, contributing to improve immigrant caregivers' adherence to CPC health recommendations. Findings allow the identification of several (modifiable) contributing factors to non-adherence at different levels of analysis, which may help to develop interventions that, by taking in consideration the multiple determinants, may prove to be more effective. Our findings also show that although some factors may equally influence immigrant and non-immigrant caregivers' adherence (e.g. SES), some determinants are specific to particular cultural groups (e.g. Cape Verdean's "expectations about traditional versus pharmacological treatments"). This suggests that

culturally sensitive approaches to the promotion of caregivers' adherence to CPC recommendation are needed.

Finally, the identification of determinants specifically related to immigrant caregivers may also bear important practical implications to the child protection area. Indeed, our results show that cultural mismatches in child care practices may be concealed from health professionals, reducing caregivers' adherence to recommendations, which ultimately may increase immigrant children's health risks and likelihood of being undertreated. Increasing health professionals' awareness to such cultural mismatches and their influence on immigrant caregivers' adherence behaviors will contribute to prevent disparities in primary care, hence, decreasing immigrant children's social/health vulnerabilities in line with the main mission of CPC (Kuo et al., 2012).

In conclusion, we believe that the present study constitutes an original theoretical and empirical contribution to treatment adherence literature by focusing on immigrant caregivers' adherence behaviors in a primary health-care context. It clearly stresses the importance of considering unintentional non-adherence behaviors and calls for further research on the role of social and cultural determinants of adherence. Finally, it contributes to the promotion of immigrant caregivers' adherence to CPC health recommendations and, consequently, to the protection of more vulnerable children.

3. SOCIAL REPRESENTATIONS ABOUT CHILD PRIMARY CARE

This chapter is based on the paper: Mourão, S., & Bernardes, S. F. (submitted). Immigrant and Portuguese caregivers' representations of child primary care: A mixed-methods study. *Journal of Health Psychology*.

Abstract

Drawing upon Social Representations Theory, this study investigated: (1) immigrant and non-immigrant caregivers' representations of the general characteristics and activities of Child Primary Care (CPC) services in Portugal; and (2) whether such representations differed considering their immigrant and socio-economic status, and health system/insurance. Data from focus groups and individual interviews (n=35 individuals; 85.7% immigrants) were analyzed by a qualitative multi-method approach. Overall, caregivers identified several CPC activities preconized in the clinical guidelines. Nevertheless, different profiles of representations of CPC activities were held by different caregiver groups, suggesting the influence of social and cultural contexts on health service representations.

Key-words: Child primary care services, caregivers, health behaviors, social representations

Introduction

The role of CPC on health promotion

Given their dominant focus on health promotion, child primary care (CPC) services may contribute to prevent and early detect important health problems, which may have a significant middle or long term impact on children's quality of life. CPC is an important source of support and technical advice for parents or main caregivers, in which health recommendations play a central role (e.g. anticipatory guidance to prevent common accidents, promotion of healthy feeding practices; Barak et al. 2010; DGS, 2013; Jenni, 2016). The role of CPC is particularly relevant for more vulnerable children (e.g. immigrant and/or of lower socio-economic conditions), who often report higher prevalence of health problems (e.g. obesity or overweight, asthma, dental caries; Barak et al., 2010; Kuo et al., 2012).

Nevertheless, immigrant families, and especially those from lower socio-economic conditions, have been consistently identified as a vulnerable group regarding their access to health services, particularly primary care (e.g. cultural and communication barriers; Ahmed et al., 2016; Dias et al., 2018) and also in following (preventive) health professionals' recommendations (e.g. pharmacological treatment, injury prevention, healthy diet; Heerman, et al. 2016; Mourão & Bernardes, 2014; Kirkpatrick et al. 2012). It is then of utmost importance to promote caregivers' access to CPC and adherence to its health recommendations, especially for more vulnerable families. Indeed, this contention is recognized by most European public health policies, which stipulate a universal and free access to CPC services (DGS, 2009; van Esso et *al.*, 2010).

From a public health perspective, individuals' literacy and knowledge about health services may determine their use of such services, by shaping their perceptions and needs of care (Levesque et al., 2013). Similarly, health psychologists have proposed that individuals' knowledge and common sense representations about health or illness may determine health behaviors, including treatment adherence (Byrne, 2013; Holmes et al., 2014; Leventhal & Cameron, 1987). Thus, following this line of reasoning, it is reasonable to expect that caregivers' representations of CPC may influence their access and use of these services, and their adherence to its health recommendations. Indeed, a few qualitative findings have shown that immigrant (and non-immigrant) caregivers' adherence to recommended vaccines was in part associated with their representation of vaccination as being the central activity of Portuguese CPC (Mourão & Bernardes, 2019).

Thus, by drawing upon the Theory of Social Representations (TSR) (Flick, 2000; Joffe 2002[a)]; Joffe, 2002 [b)]), a theory about how people construct and negotiate meanings about the world around them/social objects, this study aimed to do an in-depth analysis of immigrant and Portuguese caregivers' symbolic knowledge of the general characteristics of Portuguese CPC and its main activities. This theoretical approach is particularly relevant since individuals' knowledge and representations about health issues should not be viewed in a social vacuum, but instead as being influenced by their broader social and cultural context (e.g. Flick, 2000; Levesque et al., 2013).

A social representations approach

The Theory of Social Representations (TSR) has been increasingly used to explore the diversity of lay/popular understandings and beliefs about health and illness topics (Flick, 2000; Murray, Pullman & Rodgers, 2003; Priego-Hernandez, 2017). This approach assumes that health-related representations are constructed through social interaction and negotiation, with norms and cultural practices shaping them (Jovchelovitch & Gervais, 1999; Roberts, 2017). Thus, child caregivers socially construct and negotiate meanings about children's health, including representations of CPC services.

Research on health promotion may particularly benefit from adopting a TSR approach, because it emphasizes the social-psychological factors that shape the choices people make about health-related issues, and especially the role of values, emotions and symbolic knowledge in how lay people deal with/make sense of health and technological risks and scientific information (Joffe, 2002 [b)]). Exploring caregivers' representations about the CPC using the TSR goes beyond other more individualist and cognitivist approaches, in considering the social and cultural dimensions of the construction of attitudes, beliefs and practices about health and illness (Joffe, 2002 [b)]; Flick, 2000). Moreover, the TRS also takes into account that in nowadays plural societies, the same culture, group and individual can hold different and even contradictory meanings about the same object, i.e. cognitive polyphasia (Priego-Hernandéz, 2017; Jovchelovitch & Gervais, 1999). In fact, one of the main insights of the TSR is that social change, or the negotiation between different meanings about an object, does not imply the immediate replacement of one meaning or representation for another, but often instead their co-existence during long periods of time (Castro & Batel, 2008). As such, we intend not only to analyze caregivers' representations of the main characteristics and activities of CPC, but also the extent to which these representations overlap with the

preconized clinical guidelines that regulate the CPC health programs. In this case, the polyphasic thinking proposed by the TSR becomes a useful tool to analyze how these guidelines, which classically represent the more formal scientific knowledge, are appropriated and negotiated in caregivers' common sense representations of services.

Finally, the TSR allows us to explore the different contents of the representations constructed by different social groups, and how they are related with their cultural backgrounds and social conditions (Flick, 2000; Joffe [b)], 2002). The social groups to which one belongs to are important in shaping which aspects of socially embedded knowledge are drawn upon and provide a map that guides the perceptions and comparisons with other social groups (Roberts, 2017). In the case of immigrant and/or socio-economic disadvantaged families, the inadequate use of primary care has been associated with lack of information or of familiarity with health services and its main activities (Llop-Gironés, Lorenzo, Garcia-Subirats, Aller & Navarrete, 2014; Ahmed et al., 2016). Thus, the shared social and cultural backgrounds of these groups may contribute to specific representations about appropriateness or quality of CPC, especially in relation to their needs, and they may differ from other groups of caregivers (Levesque et al., 2013). Accordingly, and using a mixed-method approach, this paper also intended to explore if caregivers' representations about CPC differ considering their immigrant status and socio-economic conditions, and also their health system/insurance.

Method

The data analysed in this study was taken from a larger pool of data collected for the development of a grounded-theory on the determinants of Cape Verdean and Brazilian immigrants' adherence to CPC health recommendations (Mourão & Bernardes, 2019), which resulted from two waves of data collection. First, were conducted a set of focus groups with immigrant mothers to explore their general experiences with CPC. Afterwards, individual interviews were conducted with immigrant and non-immigrant caregivers to provide an in-depth analysis of their representations about CPC and its main activities. These qualitative procedures are detailed below.

Participants

The first wave of data collection included a convenience sample of 13 Cape Verdean (68.4%) and 6 Brazilian immigrant mothers (31.6%) (n = 19), given the high representativeness of these immigrant groups in Portugal (SEF, 2016). Participants' ages

ranged between 22 to 41 years old (*M* = 28.7, *SD* = 6.2), they had arrived Portugal on average 7.3 years ago (*SD* = 4.8) and most of them (73.7%) had kept their original nationality. They had between 1 to 7 children, with diverse ages, but at least one children had between 2 months and 12 years. On average, they had a basic educational level (*M* = 9.8 years, *SD* = 3.3). The majority were employed (66.7%) as house/cleaning maid (55.6%) and half of them had a monthly household income of less than 485€.

Sixteen mothers participated in the second wave of data collection: 4 Cape Verdean, 7 Brazilian and 5 Portuguese. Their ages ranged between 18 to 48 years old (*M* = 30.3, *SD* = 7.3) and they had between 1 to 2 children, with less than 5 years old. Immigrants had arrived Portugal on average 10.7 years ago (*SD* = 4.8) and half of them had national/double citizenship. On average, they had a secondary level of education (*M* = 11.7 years, *SD* = 4.0), half of them were employed in diverse professions and with heterogeneous values of monthly household income. One Portuguese grandmother was also included in the sample, to complement the information obtained from the mother and because she went very often with child to the services.

Procedure

Relevant key-institutions (e.g. immigrant associations, national center of immigrants' support) were contacted to identify eligible participants and to provide their contacts, as to be invited by phone to collaborate in the study. Those who accepted received a formal letter or e-mail one week before their focus groups/interviews (Krueger & Casey, 2000; Morgan & Krueger, 1998). A "snowball" recruitment approach was also used.

Data collection was conducted in neutral and comfortable spaces (e.g. rooms in immigrants associations, participants' houses). Both the focus groups and the interviews started by making clear the study's goals and participation rules. At the end, caregivers individually filled out a socio-demographic questionnaire.

This study complied with ethical and deontological principles, and was approved by the ISCTE-IUL Institutional Review Board. The anonymity/confidentiality of the data was guaranteed to all participants and they gave their written consent to voluntary participation.

Data Collection

In the first wave 5 homogeneous focus groups were conducted (n = 19) (Morgan & Krueger, 1998); i.e. constituted by Cape Verdean or Brazilian mothers, respectively. Each

focus group had a maximum of 6 participants (see Mourão & Bernardes, 2019). Following similar procedures of previous studies on health-related social representations (e.g. Flick, 2002; Jovchelovitch & Gervais, 1999; Murray et al., 2003; Nencini, Sarrica, Cancian & Contarello, 2014), the focus group sessions encouraged the participants to reflect on their own personal experiences in CPC and to express their viewpoints about the services, thus enabling the facilitators to play a less active role. Accordingly, the script included a main stimulus question on subjective definitions of the topic under study (i.e. *"What comes to your mind when you think about your child's routine consultations appointments? In Portugal?"*). Story-telling narratives about everyday experiences or practices in the services were also asked for (i.e. *"Tell me about your experience in these consultations (in Portugal, but also in Cape Verde/Brazil). What do other Cape Verdean/Brazilian caregivers share with you about their experiences in these routine consultations (in Portugal)?"*).

In the second wave of data collection, 17 individual interviews were conducted. A more specific and semi-structured script was developed, emphasizing participants' representations of the main activities developed by Portuguese CPC. Typical questions included: *"How do you usually call these visits? What do you think is their purpose? Please recall the first time you went to a child's routine consultation. Tell me about this experience. Please describe a typical visit: Where do these visits take place? Who is involved? What happens in these visits?"*

All the data was recorded in audio format, and subsequently verbatim transcribed.

Data Analysis

First, data was analysed using a content analysis methodology, to explore participants' representations of CPC and its main activities (Hsieh & Shannon, 2005; Vala, 2005). The majority of the process was developed "top down", drawing upon the available information on the Portuguese CPC clinical guidelines (e.g. DGS, 2013). Only some subcategories were developed "bottom up" – considering what emerged directly from the data (e.g. general health assessment, general counselling or parental support). As in other studies examining health-related social representations (e.g. Jovchelovitch & Gervais, 1999; Roberts, 2017), the first order categories were defined as near as possible to participants' speeches. A second order analysis was conducted to embrace some of these sub-categories in superordinate categories/dimensions (e.g. different types of screening and counselling). The content analysis was performed with the support of Maxqda 11 software.

To ensure quality in the content analysis' results, the inter-rater agreement in the correspondence between categories/subcategories of "perceived activities in CPC" and participants' speeches was analysed (i.e. inter-coding fidelity index; Vala, 2005). In a first round, with three independent judges, 81% of inter-rater agreement was reached. After the clarifying the definition of some of the (sub)categories, a final inter-rater agreement of 87% was achieved with one independent judge.

Afterwards, a multiple correspondence and a cluster analysis were performed, to identify different profiles of caregivers' representations of Portuguese CPC activities and to analyze associations between these profiles and some of the participants' characteristics (i.e. immigrant status, socio-economic conditions and health system/insurance).

All the categories/subcategories identified in the content analysis as "perceived CPC activities" were used as active variables in the multiple correspondence analysis. However, in the final solution only those variables that discriminated the most in one of the two selected dimensions were included. To simplify the interpretation of the multiple correspondence analysis results of these variables were represented in two different formats: 1) when the participant identified the CPC activity, the code category represents the presence of an attribute and was marked with the (sub)category name; 2) when a CPC activity was not identified by the participant, the code category represents the absence of an attribute and was not named (see results-Figure 2). Caregivers' country of origin and other socio-demographic conditions were used as supplementary variables. Except for employment status (i.e. employed or unemployed/student), each of the other variables regarding socio-economic conditions were classified into three broad categories, namely: basic, secondary or university level of education; non-specialized profession (e.g. cleaning/housemaid and store clerk), intermediary level profession (e.g. cook, hairdresser/beautician, administrative and receptionist) or specialized profession (e.g. teacher and sociologist); monthly household income less than 450€, between 450€ and 1000€ or more than 1000€. Also, health system/insurance (i.e. public or private) was used as a labeling variable.

Multiple correspondence analysis generates a set of factorial dimensions to explore relationships between categorical variables (Greenacre, 2007; Carvalho, 2008). The profiles were identified by considering the spatial proximity between the categories. To provide the structure of the associations between the categories into a graphical subspace, 2 dimensions were considered (i.e. those that had the highest inertia values and also that assumed a relevant conceptual meaning). Interpretation of these dimensions was based on the discrimination

measures and contributions of the active variables (Greenacre, 2007; Carvalho, 2008). The most relevant active variables for each dimension were the ones that had the highest discrimination/contributions values (i.e. highest explained variance).

In order to validate the multiple correspondence analysis solution, a hierarchical cluster analysis was performed (Carvalho, 2008; Hair, Black, Babin & Anderson, 2010). The cluster analysis was suited by a k-means algorithm, using standardized object scores in the two dimensions from the multiple correspondence analysis as input variables. Multiple correspondence and cluster analysis were performed with the support of IBM SPSS Statistics (version 20).

Results

Representations about general characteristics of CPC

Several lay **designations** were used to refer to CPC (e.g. surveillance, development or paediatric consultations). However, "routine consultations" was the term most commonly used, mainly associated with perceptions of a certain **periodicity** in these visits or its activities (e.g. vaccination), which are usually previously scheduled.

P1 (FG participant 1): (...) when he was a little baby the consultations took place every month. Usually, when they grow up, the consultations start to happen every six months or even once a year. (3rd FG; Brazilian mother)

Depending on the **health system or insurance**, these routine consultations take place in public health care centres (mainly perceived as not paid/reimbursed by the government) or in private clinics (primarily reported as paid/not reimbursed by the government). Some of the participants referred using both systems:

I12 (Interviewee 12): I feel respected and welcomed in both public and private spaces. I never had any inconvenience in the public service because of going to the private service. (interview; Brazilian mother)

Several health-care **professionals** were identified as main intervenients in CPC, mainly, doctors and nurses, but also administrative and auxiliary staff. Doctors were identified as having different degrees of expertise (i.e. family/general practitioners mainly in the public system or paediatricians mainly in the private services).

Finally, the participants' discourses about **similarities/differences** between **Portuguese CPC and services from Brazil/Cape Verde** were not consistent. Some immigrant caregivers reported the presence of routine consultations provided by public health

care centres in their countries of origin, to some extent similar to the Portuguese visits (e.g. use of a child health book). However, participants perceived that, particularly in Brazil, most families went to private services as to avoid lower quality services provided by the public system (e.g. long waiting time to assistance):

I3: Today many people choose to have a health insurance. INT: Private? I3: Yes. Because they have a faster assistance (...) But I know that this insurance is much more expensive there than here! (interview; Brazilian mother)

Other immigrant caregivers pointed out to the non-existence of public CPC in their origin countries, or at least not organized as the Portuguese CPC (e.g. no access to family doctors). In these cases, participants reported that children would only go to health services, particularly hospitals, when they were sick or to be inoculated or receive treatments. Thus, their children's health seems not to be monitored in terms of preventive care:

I11: Here, the child is followed since their birth, right? After that, have the consultations (...) from one month, three months, six months, nine months, two years, five... There, it is not like that. There, they go when the child is sick. (interview; Cape Verdean mother)

Representations of CPC main activities

The Table 2, presents the several activities of the Portuguese CPC that were identified.

Table 2. Caregivers' representations of CPC activities

Categories	Subcategories	Meaning units (n)
Screening (n=115)	Physical growth	53
	Childhood diseases	42
	Psychomotor development	20
Counseling (n=102)	Nutritional	58
	General/parental support	21
	Usual symptoms/(chronic) diseases	13
	Children's hygiene	7
	Childhood accidents	3
	Vaccination	49
Assessment (n=19)	General health	13
	Risk of maltreatment	6
	Referencing	9

As presented in Table 2, screening and counseling were the CPC activities more frequently reported by the participants. **Screening** of physical growth (e.g. weight, height,

head circumference) and psychomotor development (e.g. cognitive abilities, walking, speaking) involve the evaluation of healthy children to check if they fit their developmental stage:

I3: I think that it is to know (...) if she is following the patterns, isn't it? Of normal growing, development. (interview; Brazilian mother)

Screening of childhood diseases includes a specific evaluation of children's health (e.g. cardiac and respiratory systems, vision, hearing) to early detect possible genetic illnesses or malformations:

I15: (...) to understand if there is something developing that is possible to detect very early on and give a quick answer. (interview; Cape Verdean mother)

Regarding the first consultation, screening of childhood diseases was specifically associated with the technique of newborn screening (commonly recognized as the "children foot test").

Counseling included health professionals' recommendations to improve children's care practices, specifically related with issues such as: childhood accidents (i.e. risks of certain toys or drug intoxications), usual symptoms or (chronic) diseases (e.g. belly pain, coughing, allergies), hygiene (body and oral, clothing) and nutrition (including breastfeeding). Nutritional counselling was not only associated with the maintenance of healthy feeding practices, but also particularly with the adjustment of diet patterns to children's age/developmental stage:

I2: When he is ready to eat, they [health-care providers] give me a flyer explaining how the first food is, how to introduce it... (interview; Brazilian mother)

Sometimes counseling was also reported as non-specific health advices or associated with health professionals' parental support:

I8: She provides me counselling, that's it, she gives me good advice... To him... I accept her advices... I keep with her advices... (interview; Portuguese grandmother)

While nurses were identified as being primarily responsible for screening children's physical growth, the screening of their psychomotor development was particularly associated with doctors. According to the participants, both doctors and nurses shared the responsibility of counselling:

I12: I think that there are the nurses who have more this mission and this concern of guiding the families (...) (interview; Brazilian mother)

Vaccination and assessment were CPC activities also identified by many caregivers (Table 2). **Vaccination** occurs in specific and predefined calendars, and like the screening of children's physical growth, it was perceived as an activity of nurses' main responsibility.

Assessment was associated with the evaluation of maltreatment risk (i.e. neglect practices related to feeding or non-pharmacological practices), but particularly with children's general health (i.e. non-specific evaluation of children to check if they are healthy):

P1: I think that routine consultations exist to know if they are ok (…) (5th FG; Cape Verdean mother)

As presented in Table 2, **referencing** was an activity less mentioned by the participants. It refers to forwarding children to other medical specialties or other health institutions (e.g. hospital, specialist practitioner), when their medical conditions require it (e.g. to make an x-ray, to have a specific and more specialized assistance).

Profiles of representations of CPC activities

Table 3 indicates which CPC activities were most important to discriminate the two selected dimensions, after the exclusion of the two variables that did not discriminate specifically any of these dimensions (i.e. counseling to manage usual symptoms/(chronic)diseases and assessment of risk maltreatment).

Table 3. Discrimination measures and contributions of the variables entered in the multiple correspondence analysis

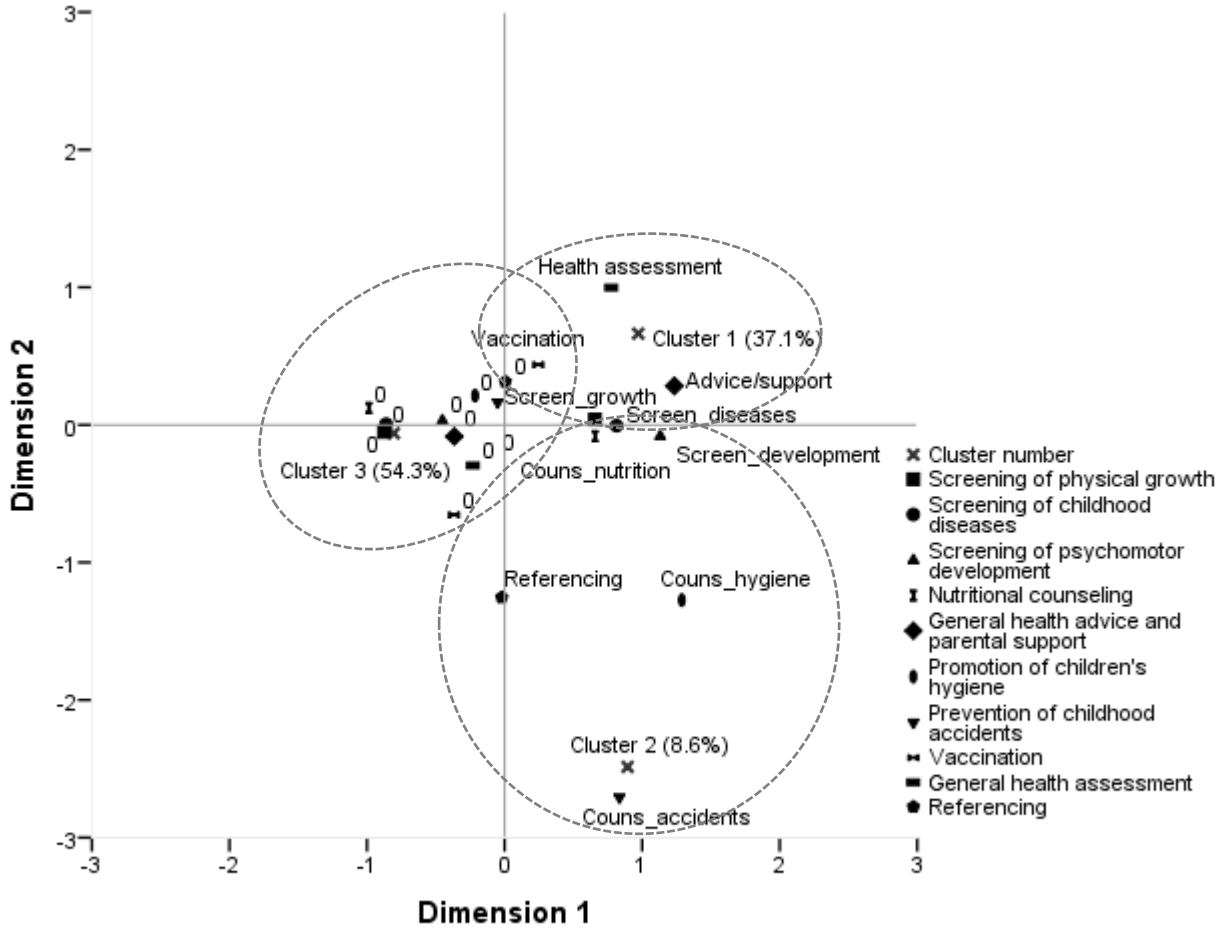
Variables	Dimension 1		Dimension 2	
	Discrimination	**Contribution (%)**	**Discrimination**	**Contribution (%)**
Screening of childhood diseases	**0.701**	20.2	0.000	0.0
Nutritional counseling	**0.649**	18.7	0.010	0.6
Screening of physical growth	**0.576**	16.6	0.002	0.1
Screening of psychomotor development	**0.512**	14.7	0.003	0.2
General health advice and parental support	**0.451**	13.0	0.024	1.4
Prevention of childhood accidents	0.042	1.2	**0.444**	25.7
Referencing	0.000	0.0	**0.393**	22.8
General health assessment	0.178	5.1	**0.295**	17.1
Vaccination	0.090	2.6	**0.285**	16.5
Promotion of children's hygiene	0.277	8.0	**0.271**	15.7
Total	3.476	100.0	1.727	100.0
Inertia	0.348		0.173	
Explained variance	34.762%		17.267%	

Note. Values in bold are above inertia for each dimension.

According to Table 3, dimension 1 was essentially related with **preventive** (i.e. specific screenings) and **counseling** (i.e. nutritional and general) functions. Dimension 2 was essentially related with **immunization** and **anticipatory guidance** regarding certain health problems/risks (i.e. referencing, promotion of hygiene, prevention of accidents). Some variables presented low discrimination measures in both of the selected dimensions and especially in the second dimension (e.g. vaccination). Thus, their interpretation is conditioned on the fact that they may not represent the same relevance as the others (i.e. with higher discrimination measures and especially in the first dimension).

These two dimensions were intersected in the multiple correspondence analysis and helped to identify three patterns of representations of Portuguese CPC activities (Figure 2). This solution was validated by the cluster analysis (Wards' method) that aggregated the participants in three different groups/profiles (Table 4).

Figure 2. Topological configuration of CPC activities: caregivers' profiles of representations



Note. The categories with caption represent identified activities. 0=non-identified activities (unlisted categories).

Table 4. Clusters' characteristics: caregivers' identification versus non-identification of CPC activities

	Variables	Categories	Cluster 1 (n=13; 37.1%)		Cluster 2 (n=3; 8.6%)		Cluster 3 (n=19; 54.3%)	
			n	%	n	%	n	%
Preventive Measures	Screening of physical growth	Activity identified	12	**92.3**	2	**66.7**	6	31.6
		Activity non-identified	1	7.7	1	33.3	13	**68.4**
		Total	13	100.0	3	100.0	19	100.0
	Screening of childhood diseases	Activity identified	13	**100.0**	3	**100.0**	2	10.5
		Activity non-identified	0	0	0	0	17	**89.5**
		Total	13	100.0	3	100.0	19	100.0
	Screening of psychomotor development	Activity identified	7	**53.8**	2	**66.7**	1	5.3
		Activity non-identified	6	46.2	1	33.3	18	**94.7**
		Total	13	100.0	3	100.0	19	100.0
Counseling	Nutritional counseling	Activity identified	12	**92.3**	3	**100.0**	6	31.6
		Activity non-identified	1	7.7	0	0	13	**68.4**
		Total	13	100.0	3	100.0	19	100.0
	General health advice and parental support	Activity identified	7	**53.8**	1	33.3	0	0.0
		Activity non-identified	6	46.2	2	**66.7**	19	**100.0**
		Total	13	100.0	3	100.0	19	100.0
Anticipatory guidance	Promotion of children's hygiene	Activity identified	3	23.1	2	**66.7**	0	0.0
		Activity non-identified	10	**76.9**	1	33.3	19	**100.0**
		Total	13	100.0	3	100.0	19	100.0
	Prevention of childhood accidents	Activity identified	0	0.0	2	**66.7**	0	0.0
		Activity non-identified	13	**100.0**	1	33.3	19	**100.0**
		Total	13	100.0	3	100.0	19	100.0
	Referencing	Activity identified	0	0.0	2	**66.7**	5	26.3
		Activity non-identified	13	**100.0**	1	33.3	14	**76.7**
		Total	13	100.0	3	100.0	19	13
	Vaccination/Immunization	Activity identified	12	**92.7**	0	0.0	9	**47.4**
		Activity non-identified	1	7.7	3	**100.0**	10	52.6
		Total	13	100.0	3	100.0	19	100.0
	General health assessment	Activity identified	7	**53.8**	0	0	1	5.3
		Activity non-identified	6	46.2	3	**100.0**	18	**94.7**
		Total	13	100.0	3	100.0	19	100.0

According to Table 4, the majority of caregivers were distributed in the profiles of **cluster 1** (37.1%-**broader representation**) or **cluster 3** (54.3%-**vaccination**). The profile identified as a broader representation of CPC activities was associated, not only with vaccination and general health assessment, but also with the several activities of screening and counselling (Figure 2). In this case, the screening of physical growth and childhood diseases and also the nutritional counselling were highlighted. Conversely, the profile identified as vaccination was associated with the underrepresentation or non-identification of

several CPC activities (Figure 2), except vaccination that was recognized by about half of the caregivers (47.4%). In this case, it was also present an underrepresentation of the screening activities and nutritional counselling.

The profile of **cluster 2** was the lowest represented (8.6%-**specific representation**). Although it was also associated with screening activities and nutritional counselling, it distinguishes itself by the identification of particular activities of anticipatory guidance (i.e. referencing, promotion of hygiene and prevention of accidents; Figure 2), which were underrepresented or not recognized in the two other clusters.

The representation profiles were associated with participants' socio-economic conditions (Figure 3) and discriminated by their health system/insurance (Figure 4).

Figure 3. Caregivers' socio-economic conditions in association with their profiles of representations of CPC activities

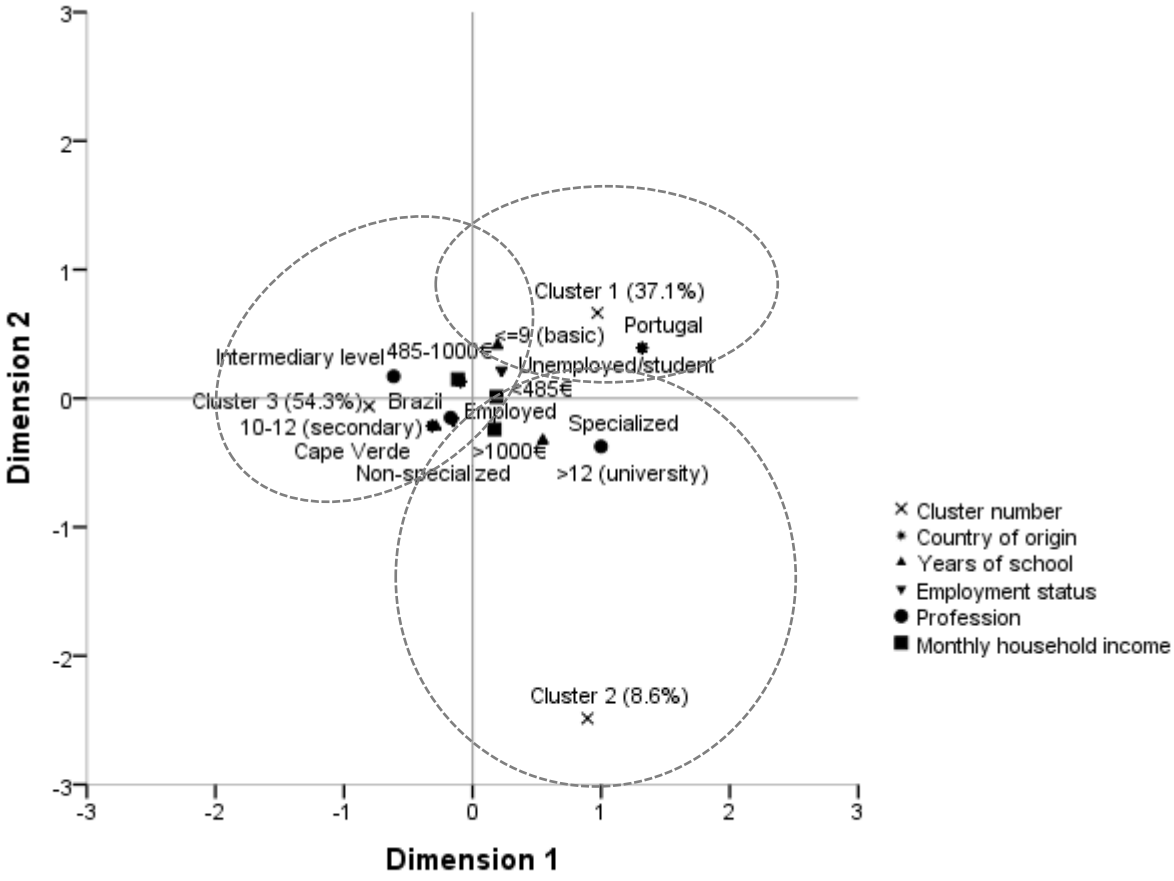
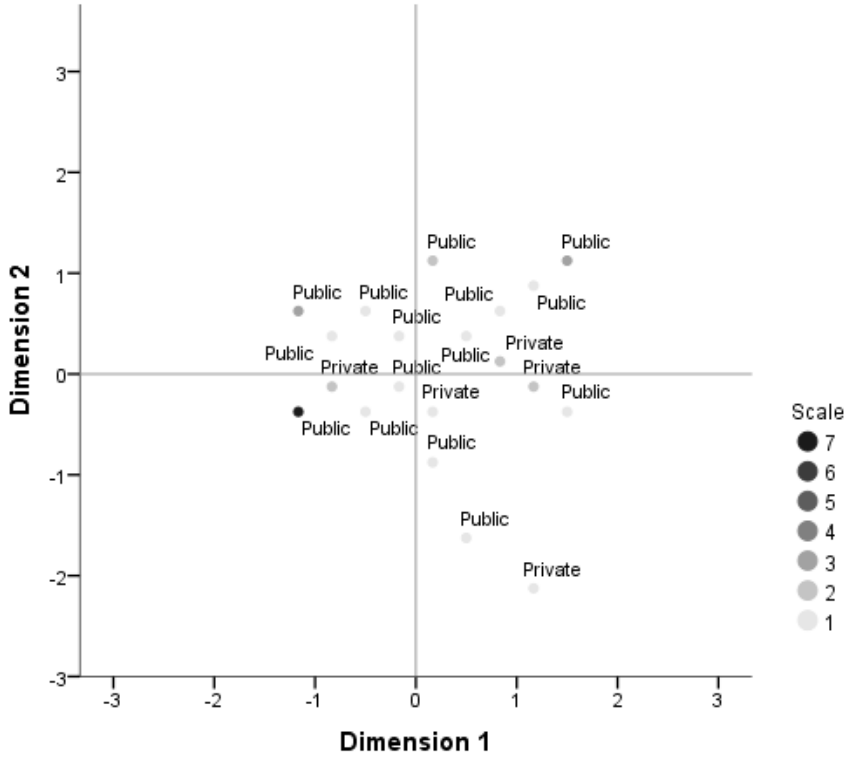


Figure 4. Discrimination of caregivers' representations of CPC activities according to their health system/insurance



According to Figure 3, the **broader representation profile** was associated with Portuguese caregivers or caregivers from the lowest socio-economic conditions (i.e. basic schooling, unemployed or with less than 485€ of monthly household income). The **vaccination profile** was associated with immigrant caregivers or caregivers from lower to medium socio-economic conditions (i.e. employed but with non-specialized or intermediary professions, with secondary school or monthly household incomes from 485-1000€). The **specific representation profile** was associated with caregivers from medium to higher socio-economic conditions (i.e. university studies, specialized work or monthly household income higher than 1000€).

As indicated in Figure 4, the **broader representation and vaccination profiles** were mainly constituted by caregivers who reported using the public health system. Conversely, the **specific representation profile** was mainly constituted by caregivers who reported using a private health system.

In sum, caregivers' dominant representation of CPC activities focused on vaccination and was mainly shared by immigrants or people from lower to medium socio-economic status and that went to public services. It was also identified a broader representation that

emphasized the prevention of childhood diseases, but where vaccination, screening of physical growth and nutritional counselling had also relevance. This broader representations was shared by Portuguese caregivers, but also from those who had a lower socio-economic status and who went to public services. Finally, a marginal representation of CPC activities was identified, more specific and essentially focused on anticipatory guidance, which was shared by caregivers from a medium to higher socio-economic status who went to private services.

Discussion

The main aim of this study was to do an in-depth analysis of immigrant and Portuguese caregivers' symbolic knowledge of CPC, drawing upon a social representation approach (Flick, 2000; Murray et al., 2003; Priego-Hernandez, 2017). First, caregivers' representations of the general characteristics of services were explored, and also those about its main activities. This analysis allowed us to identify caregivers' dominant shared viewpoints about these health concepts (Flick, 2000; Murray et al., 2003). Afterwards, and considering that the TSR allows us to explore the different contents of the representations constructed by people belonging to different groups (Flick, 2000; Joffe [b)], 2002), we was also explored if the caregivers' representations about CPC were associated with their immigrant status and/or socio-economic conditions, and also with their health system/insurance.

Representations of CPC general characteristics

Caregivers' representations of CPC general characteristics highlighted four main dimensions: lay designations used to refer to CPC; health system/insurance used to access the services; health professionals recognized as intervenient in CPC; similarities/differences between Portuguese and Cape Verdean/Brazilian services.

On the first dimension, the most prominent category was "routine consultations", which is an interesting symbolic image of well-child visits that represents what is formally regulated to be the privileged intervention in the CPC: periodic medical appointments that take place at pre-determined children's developmental stages and that are harmonized with the national vaccination program (DGS, 2013, Jenni, 2016).

Regarding the health system/insurance used to access CPC, some of the caregivers' representations identified general practitioner-based services, which are provided by the Portuguese health system as well as the majority of European countries (DGS, 2013; van Esso

et al., 2010). Nevertheless, caregivers' representations also embraced a combined supply from a private pediatric service, which some of them used concomitantly with the public offer. This may indicate a certain degree of mistrust of an exclusive general practitioner-based service. Indeed, in countries where this kind of system prevails, parents tend to call on primary care earlier in the evolution of a child's illness and to demand hospitals for emergency assessment when they feel that their children are ill, which has led some authors to question the efficacy of family doctors as the main gatekeepers for pediatric patients (van Esso et al., 2010).

Not surprisingly, doctors and nurses were identified as the main intervenients in CPC (Jenni, 2016; van Esso et al., 2010), which speaks about their centrality in caregivers' representations. Nevertheless, professionals of other areas (e.g. psychologists, oral hygienists; DGS, 2013), who are regulated to intervene in articulation with doctors and nurses and specially in activities that justify it (e.g. referencing), were not identified, suggesting a shared non-relevance about them. Interestingly, participants' representations about CPC replicate some formal responsibilities of each professional group. For example, vaccination was particularly associated to nurses' intervention, responsibility that is indeed formally regulated and commonly widespread as responsibility of this professional group (Anderson, 2015; Miller, Shimabukuro, Hibbs, Moro, Broder & Vellozzi, 2015). Also monitoring children's growth was mainly associated to nursing care, while monitoring the psychomotor development was particularly associated to medical care; despite the limits of intervention in these activities not being so clear in the formal guidelines. Nevertheless, these lay representations may help us to understand and predict to which professionals they will prefer to appeal to according to a specific necessity; which perhaps may have some impact in terms of health professionals' training.

Immigrants' representations about similarities or differences between Portuguese services and those from their countries of origin assume a particular relevance, because they may help account for the different profiles of representations regarding CPC activities that will be discussed below. According to the TSR, immigrants' new experiences in the Portuguese services are integrated and molded in a way that appears continuous with their existing ideas about the Cape Verdean/Brazilian services (Joffe, 2002 [b)]). Thus, their unfamiliar ideas about the Portuguese CPC will be made familiar by being linked with their previous experiences in the services from their countries of origin, which may impact some of their health-behaviors (Almeida, et al. 2014; Cheng, Wahidi, Vasi & Samuel, 2015; Garg, et al. 2017). For example, some immigrant caregivers identified hospitals as the main health

services in Cape Verde/Brazil, so they may not naturally recognize the Portuguese CPC as the entrance door service in the national health system. This lay representation may eventually contribute to inadequate patterns of children's preventive health care, despite the political investment in promoting openness and equity in access to care, including for immigrant families (DGS, 2009). Other immigrant caregivers reported that children only went to Cape Verdean/Brazilian health services when they were sick, to be inoculated or receive treatments. This lay representation neglects the relevance of preventive health care, main area of intervention of Portuguese CPC (DGS, 2013), which may also impact immigrants' demand for this type of care, especially when recently arrived in the country or when they are not particularly familiarized with the national health system.

Representations of CPC main activities

Besides CPC general characteristics, this study also explored caregivers' representations about its main activities, in order to make sense of how they overlap with the guidelines that regulate the CPC health programs. At this point, the participants as a whole identified several of the specific activities that are preconized in these clinical guidelines, namely: monitoring of general health, physical/psychomotor development, childhood diseases and risk of maltreatment; counseling related to different aspects (e.g. nutritional); vaccination; referencing (Barak et al. 2010; DGS, 2013; Jenni, 2016). Thus, their overall representations about the services seemed to be anchored in the regulated general functions of health promotion and disease prevention or early detection (DGS, 2013; van Esso et al., 2010).

Nevertheless, some activities took precedence in caregivers' discourses, indicating that their social representations of CPC were strongly associated to specific activities, namely, vaccination, screening of physical growth and childhood diseases and nutritional counselling. These activities have, indeed, been consistently prioritized in clinical guidelines for the last thirty years (DGS, 2013; Jenni, 2016) and so caregivers' construction of knowledge of CPC might have been, to some extent, influenced by this historical background (Priego-Hernandez, 2017). Conversely, the CPC activities more associated to children's social and psychomotor development (e.g. screening of psychomotor development, parental support, counselling to prevent childhood accidents) were underrepresented in caregivers' discourses. This suggests that caregivers' shared CPC representations neglect its dominant biopsychosocial orientation, which is regulated for current services (DGS, 2013; Jenni, 2016). Instead, caregivers' representations about CPC were clearly anchored on the monitoring of children's physical and

biological health, which related to a more classic biomedical paradigm (Foster, 2003; Fuller, 2017). Thus, it becomes important to reflect on the role of health institutions and/or professionals on the construction of these representations (Joffe, 2002 [b)]), namely, the extent to which daily CPC practices reflect a more biomedical (vs. biopsychosocial) approach. For example, concerning child injuries, it is recognized that they constitute the leading cause of death in many countries and that a large proportion of these injuries (e.g. drowning, burns, falls) occur at home (Peden et al., 2008). Although CPC should be a privileged space to empower children's caregivers with competencies to deal with this global public health problem, it seems this might not be happening, perhaps because there are other preventive measures that are more socially recognized (e.g. global health campaigns). In this case, the knowledge which is supposed to be constructed in the health context ends up to be assimilated mainly by the mass media communication (Joffe, 2002 [a) b)]).

Not surprisingly, CPC activities that answer to specific medical conditions were also not central in caregiver's discourses (e.g. referencing to other medical specialties or health institutions). Contrary to the references above, this may indicate that, instead of not being perceived as relevant, these activities were only central to caregivers whose children shared these particular needs.

In sum, these results underlie a multifaceted and fluid character of caregivers' representations of CPC, which are socially constructed within a specific socio-historical context (Joffe, 2002 [a)]; Murray et al., 2003).

Profiles of representations of CPC activities

As theoretically expected and answering to the second objective of the article, our results also showed that members of different social groups hold different profiles of CPC representations. These differences reflect different contextual conditions against which caregivers' representations were analyzed, namely, being or not immigrant, from a lower or higher socio-economic status and using the public or private health system.

The most disadvantaged caregivers, Portuguese or immigrants, who went to public services, shared similar representations of CPC. They identified the monitoring of children's physical development and the promotion of a healthy diet as the central activities of CPC. Thus, this social group of caregivers seemed to neglect the potentiality of services for the identification and intervention in broader situations of psychosocial or family vulnerability (e.g. exposure to violence/bullying; substance use) that may also affect children's overall

health or quality of life (Barak et al., 2010; DGS, 2013). This is a striking conclusion, because it reflects that the preconized CPC mission to buffer the effects of certain social vulnerabilities on children's health ends up to not being recognized by the more disadvantaged caregivers (i.e. immigrants especially from lower socio-economic conditions).

In the case of immigrants, a representation mainly focused in physical and biological dimensions of CPC, may be to some extent anchored in their experiences with/representations of the services in their countries of origin, as discussed above. In the case of caregivers from lower socio-economic conditions, it is important to question whether health professionals, especially from public services, are clearly communicating with this group of caregivers about the CPC biopsychosocial approach. Indeed, caregivers' representations of CPC are socially constructed in a permanent dialogue, not only among caregivers themselves, but also with health professionals. Thus, if health professionals differentially emphasize CPC health promotion focus according to caregivers' socio-economic or immigrant status, they may be contributing to the presence of different pockets of shared representations (Joffe, 2002 [b]).

Conversely, caregivers from a medium to higher socio-economic status, who went to private services, had a more detailed representation of CPC, essentially anchored on activities of anticipatory guidance (i.e. referencing, promotion of hygiene and prevention of accidents). For this social group, CPC was associated with the preconized biopsychosocial and preventive approach, as some of the highlighted activities included relevant health recommendations beyond monitoring children's growth/childhood diseases. Indeed, these recommendations regarding what is expected in terms of the next steps of child development (e.g. risk of a specific accident, hygiene patterns/habits), not only anticipate possible caregivers' concerns, minimizing unnecessary contact with health services, but also empower families with more adequate parental competencies (DGS, 2013; Jenni, 2016). Thus, these caregivers' representations of CPC may end up protecting their children's health.

Summing up, the social representations approach of this work, instead of producing a generalized framework about caregivers' understanding of CPC, unveiled the specific complexities of the historical, social and cultural meanings about these services. Different representations of CPC highlighted how caregivers construct their knowledge about the services through lenses tinged with elements from their cultural and social backgrounds and themselves, health institutions/professional and media, and also from experiences in contemporary versus past backgrounds. Thus, this qualitative inquiry into social

representations contextualize caregivers' knowledge about CPC in concrete circumstances instead of decontextualizing it in abstract and general cognitive models.

Limitations, implications and directions for future research

Some limitations can be pointed out to this study, which are in turn related to future directions for research. First, this study is a secondary data analysis on the backdrop of a grounded-theory study (Mourão & Bernardes, 2019), in which the criteria of data saturation was used for sampling purposes. This criteria, however, is not sensitive to participants' characteristics and, consequently, did not allow us to have social groups with a similar distribution in terms of their sociodemographic characteristics (i.e. immigrants versus non-immigrants; higher versus lower SES; access to public versus private services). Accordingly, the results of the MCA should be analyzed in view of this bias, and any considerations about the generalizability of these findings should be very conservative. Indeed, further research should include a more targeted data collection procedure, preferentially with a larger sample and a multi-informant perspective. The triangulation of sources and methods could involve exploring CPC representations with interviews and also free association tasks, not only with caregivers as representatives of lay thinkers, but also with health professionals. In a complementary angle, it can also be useful to explore how the knowledge of CPC is communicated by the mass media or medical journals (Joffe, 2002 [a)]).

Even so, pertinent theoretical and practical implications can be drawn from this article. From a theoretical point of view, the description of caregivers' social representations about CPC and especially the identification of different profiles of representations associated to different social groups was innovative. Although the role of social and cultural contexts was highlighted in relation to health behaviors, an in-depth exploration of the social roots of individuals' representations of health-services is unusual. Indeed, public health researchers tend to emphasize, at an individual level, users' information and knowledge as important determinants to access and use the services, but presupposing a more cognitivist and rational approach (Levesque et al., 2013). Also social psychologists recognize that the individuals' representations about health/illness can be shaped by environmental determinants (e.g. media, significant others; Byrne, 2013; Leventhal & Cameron, 1987), but not focusing on these relationships as the central point of their approaches. By drawing upon the TSR, this paper contributes to uncover some of the socially constructed representations of CPC services and their shared and relational roots (Flick, 2000; Joffe, 2002 [a)]).

Representations about CPC, especially from immigrants, caregivers with lower SES or those who go to public services, conflict in some way with some of the preconized clinical guidelines, as they do not reflect a biopsychosocial approach. From a theoretical point of view, this result highlights the TSR assumption that health is one domain that can be singled out as drawing upon multiple systems of knowledge (i.e. polyphasic thinking), which usually interact and negotiate on a meeting between a more scientific expertise and the lay common sense (Roberts, 2017). From a practical point of view, this understanding stimulates a reflection on how this conflict may impact caregivers' health behaviors, contributing to their inadequate access or use of services and perhaps less adherence to health recommendations. It also leads us to reflect about the role of health professionals, as representatives of scientific knowledge, and how they construct and share their own representations about services based, not only on clinical guidelines, but also on their own social and cultural background; which should be further explored.

4. DEVELOPMENT AND VALIDATION FROM THE CPC-ADHERENCE SCALE

This chapter is based on the paper: Mourão, S., Bernardes, S. F., & Carvalho, H. (submitted). Assessing Caregivers' Adherence to Child Primary Care Recommendations: Development and validation of a scale. *Psychology & Health.*

Abstract

Objective: To develop and validate a new instrument to assess caregivers' adherence to Child Primary Care (CPC) health recommendations regarding babies and toddlers, which would also be sensitive to the specificities of caregivers in more vulnerable conditions – the CPC-Adherence Scale.

Design: 662 parents (93.4% women; 6.6% immigrant) of children aged between 2 and 6 years participated in a cross-sectional study using a paper or electronic protocol.

Main outcome measures: The protocol was composed by: 1) the CPC-Adherence Scale; 2) questions regarding experiences in CPC; 3) the European Task Force on Patient Evaluation of General Practice Care (EUROPEP); 4) socio-demographic and clinical information.

Results: The exploratory and confirmatory factor analyses supported a 2-factor solution: 1) Adherence to a safe psychomotor development (n = 14 items; $\alpha = 0.894$); 2) Adherence to nutritional counselling (n = 6 items; $\alpha = 0.608$). The CPC-Adherence Scale showed good content and criterion-related validity. It discriminated levels of adherence of caregivers with different levels of knowledge about CPC recommendations, satisfaction with care and different socio-economic and immigrant status.

Conclusion: The CPC-Adherence Scale is an innovative and promising measure that may play a relevant role on future research and intervention for the promotion of adherence behaviors in a primary prevention context.

Keywords: Child primary care, health recommendations, adherence, caregivers, scale development.

Introduction

Child Primary Care (CPC) services are often described as the main source of technical support and advice for children's caregivers (Barak et al., 2010; DGS, 2013; Jenni 2016; Garg, et al. 2017). Promoting caregivers' adherence to CPC health recommendations may ensure optimal child development and prevent important health-related problems (e.g. overweight/obesity, dental caries, mental health issues), some of them with a higher prevalence among more vulnerable families (e.g. immigrants and/or with lower SES; van Esso et al., 2010). Despite the vital role of caregivers' adherence to CPC recommendations on promoting children's health, to the best of our knowledge, there are currently no measures to assess it. This study intended to overcome this gap by developing and validating a scale to assess caregivers' adherence to CPC recommendations – the Child Primary Care Adherence Scale (CPC-Adherence Scale) - which would also be sensitive to the specificities of caregivers in more vulnerable conditions.

Caregivers' adherence to CPC health recommendations: From concept to measurement

Mirroring the broad concept of therapeutic adherence (Dunbar-Jacob et al., 2012; Mourão & Bernardes, 2014; Straub, 2012), caregivers' adherence to CPC recommendations is a complex and multidetermined phenomenon. Beyond the "classical" adherence to drug prescriptions, it includes adherence to counselling regarding healthy behaviors and lifestyle practices (e.g. nutrition, hygiene care; Barak et al., 2010; DGS, 2013), which contribute to prevent and early detect relevant health issues (e.g. obesity or overweight, asthma, dental caries) that may bear significant impact on children's quality of life (Kuo et al., 2012). It also includes adherence to anticipatory guidance, which refers to *a priori* counselling regarding the several stages and domains of child development (e.g. risks related to child injuries, sleep patterns/habits). Anticipatory guidance often meets caregivers' more common concerns, minimizing unnecessary contacts with health services, while empowering families with more adequate parental competencies (DGS, 2013; Jenni, 2016). Thus, children's health might to a large extent depend on the degree to which their families adhere to CPC health recommendations.

Although the access to the majority of European CPC services (Portugal included) is universal and free for all children (DGS, 2009; van Esso et al., 2010), the degree to which caregivers adhere to CPC recommendations may greatly vary. Indeed, as adherence behaviors are multidetermined (Bosworth et al., 2006; Byrne, 2013; Mourão & Bernardes, 2014), a

myriad of individual, interpersonal, organizational, socio-economic and cultural variables may either promote or hinder caregiver's adherence to CPC recommendations. Therefore, the ability to identify and target, through effective empirically-based interventions, the underlying mechanisms that promote caregivers' adherence to CPC recommendations may be vital for the protection and promotion of children's health (Barak et al., 2010; DGS, 2013). This is particularly important for more vulnerable families that may be at increased risk of disease and non-adherence (e.g. immigrants or socio-economic disadvantaged families; Gimeno-Feliu et al., 2009; Heerman, et al. 2016; Kirkpatrick et al., 2012).

The development of a reliable and valid measure of caregivers' adherence to CPC recommendation is a cornerstone for empirically investigating its determinants and assessing the effectiveness of intervention programs. However, most current measures are mainly focused on pharmacological treatment adherence, with little regard to adherence behaviors in preventive health-related contexts, like CPC (Byrne, 2013; McNicholas, 2012). To bridge this gap, we aimed to develop a valid, reliable and sensitive measure to access caregivers' adherence to CPC health recommendations – the CPC-Adherence Scale.

Development and validation plan from the CPC-Adherence Scale

The CPC-Adherence Scale was originally developed in Portuguese to measure caregivers' adherence to CPC recommendations regarding babies' and toddlers' health, as most well-child visits occur during these developmental stages. First, drawing upon the broader concept of therapeutic adherence (Dunbar-Jacob, et al. 2012; Straub, 2012) and technical information on CPC services activities (DGS, 2013; van Esso et al., 2010; Kuo et al., 2012), an initial pool of items was developed as to cover all relevant domains of CPC recommendations. These included recommendations regarding immunization schedules, developmental surveillance, nutrition, prevention and symptom relief and prevention of childhood injuries.

Afterwards, a three-step validation plan of the CPC-Adherence Scale was defined. The first step aimed at the evaluation by experts (e.g. general practitioners and nurses) of the scale's content validity, i.e. the extent to which the measure covered all relevant domains of CPC recommendations (Furr, 2011; Lima & Bernardes, 2013). The second step, aimed at investigating the measure's construct validity (Lima & Bernardes, 2013; Litwin, 1995), namely its underlying factorial structure, by conducting exploratory and confirmatory factor analyses. Finally, the third step aimed at testing CPC-Adherence Scale's criterion-related

validity (Litwin, 1995). More specifically, we aimed to assess the concurrent relationship between caregivers' adherence to CPC recommendations (as measured by the CPC-Adherence Scale) and four criteria:

(1) Knowledge of CPC health recommendations: Such as the access to health services may depend on how users manage the approachability of information about these services (Levesque et al., 2013; Travassos & Martins, 2004), caregivers' adherence to CPC recommendations may depend on their knowledge about those recommendations. Thus, we expected that caregivers' knowledge on CPC health recommendations would be positively associated with their adherence behaviours. We used the reported frequency of child health book reading as a proxy of caregivers' knowledge of CPC recommendations. In several countries, the child health book is a free booklet provided to caregivers that is used to record child's immunizations, developmental checks and other major health events. This booklet often contains written health recommendations in a format of general tips/useful information (Amorim et al., 2018; Clendon & Dignam, 2010). Thus, we expected that caregivers who reported higher frequency of child health book reading would report higher levels of adherence to CPC recommendations. (Hypothesis 1; H1).

(2) Satisfaction with care: considering that better adherence behaviours were generally associated with higher satisfaction with care (Zolnierek & DiMatteo, 2009; Jack, McLean, Moffet & Gardiner, 2010; Hall & Roter, 2011), we expected that caregivers who reported more satisfaction with medical and nursing care would report higher levels of adherence to CPC recommendations (Hypothesis 2; H2).

(3) Socio-economic status (SES): better adherence behaviours have been consistently associated with higher SES (Colby et al., 2012; Sendt et al., 2015; Picorelli, Máximo Pereira, Pereira, Felício & Sherrington, 2014), especially in dimensions related with pharmacological treatments and with some diet recommendations (Mourão & Bernardes, 2014). Thus, we expected that caregivers from a higher SES reported higher levels of adherence to CPC recommendations, as compared to those with a lower SES (Hypothesis 3; H3).

(4) Immigrant status: immigrants usually report lower levels of adherence than non-immigrants, especially in what concerns pharmacological treatments (Gimeno-Feliu et al., 2009; Heerman et al., 2016; Kirkpatrick et al., 2012). Thus, we expected that immigrant caregivers' reported lower levels of adherence to CPC recommendations when compared with non-immigrant caregivers. Also, as immigrants' conditions in the host country (e.g. legal situation, length of stay) have been shown to influence their access to health services (Dias et

al., 2008; Wafula & Snipes, 2014), these could also influence caregivers' adherence behaviours (Gimeno-Feliu et al., 2009). Accordingly, we expected that immigrant caregivers who had Portuguese citizenship and/or that had been in the country for longer periods would report higher levels of adherence to CPC health recommendations, as compared with immigrant caregivers with no Portuguese citizenship and/or that had been in the country for shorter periods of time (Hypothesis 4; H4).

Method

Instruments

The development of the Child Primary Care Adherence Scale (CPC-Adherence Scale). As presented above, the CPC-Adherence Scale is an instrument developed in Portuguese that aims to measure caregivers' adherence to CPC health recommendations regarding babies and toddlers. The identification of CPC recommendations was based on an extensive review of medical literature about CPC services (DGS, 2013; van Esso et al., 2010; Kuo et al., 2012) and information from a previous qualitative study (Mourão & Bernardes, 2019). The CPC-Adherence Scale initial pool of 24 items included recommendations that covered the variety of domains and activities related with health advice and anticipatory guidance, namely: developmental surveillance (e.g. *Encourage the child to play; around 18 months start potty training.*); nutritional counselling (e.g. *Until 12 months old, give the child only the foods that are recommended in the routine medical appointments.*); prevention and symptoms relief (e.g. *When the child has symptoms such as fever or colic (mild symptoms) give him/her the medicines you are advised.; Brush the child's teeth as soon as he/she starts teething*); prevention of childhood injuries (e.g. *Protect electric plugs to prevent shocks and burns; In car trips transport the baby/child in a car seat suitable for his/her age or size*). A panel of five independent experts on CPC (i.e. general practitioners and a pediatric nurse) was asked to analyze the initial pool of items as to the extent they covered all the relevant domains of CPC recommendations for babies and toddlers. On the basis of their feedback, only 1 item was removed that lacked face validity and language was revised in some items.

Caregivers were asked to report to which extent they follow(ed) each recommendation in their children's care, on a 5-point Likert scale (from 1-never to 5-always). The specific instruction read as follows *"We would like to know to what extent you follow the advice given in your child's routine medical appointments*". Caregivers were also given the possibility of reporting whether the advices had not been recommended or if they did not apply to their

case. Regarding adherence to vaccination, caregivers were asked the following yes-or-no questions *"Has your child received all the vaccines that are recommended by the National Plan of Vaccination (Vaccine Bulletin)?" and "Has your child received other vaccines besides the ones recommended in the National Plan of Vaccination (Vaccine Bulletin)?*".

To minimize the problem of social desirability, the introduction and instructions of the measure were written in a non-judgmental style (e.g. *The degree to which parents follow the advice may be very variable, for several reasons: it might be difficult to integrate them into the habits of the family; they might be different from those that are given by other health professionals, family or friends*).

The preliminary version of CPC-Adherence Scale, i.e. before the exploratory and confirmatory analyzes, was pre-tested with a pilot group of 9 mothers (immigrant and non-immigrant Portuguese speakers) to determine its comprehensibility. Minor changes were made in certain items/instructions as to increase clarity (e.g. some recommendations specified with practical examples).

The Portuguese Version of the European Task Force on Patient Evaluation of General Practice Care (EUROPEP). The EUROPEP is a valid, reliable and widely used measure to assess users' satisfaction with primary health care (e.g. Wensing, Maiz & Grol, 2000). As to assess the CPC-Adherence Scale criterion validity, the subscales of satisfaction with medical and nursing care of the Portuguese version of the EUROPEP (Roque, Veloso & Ferreira, 2016) were used.

The satisfaction with medical care subscale consists of 18 items and assesses satisfaction with technical care (e.g. *Explanation about medication, treatments, and tests prescribed.)* and doctor-patient relationship (e.g. *How did the doctor listened to you.*). Caregivers were asked to evaluate their children's family doctor or pediatrician in relation to the presented 18 items. The satisfaction with nursing care subscale consists of 3 items (e.g. *Time devoted to you by the nursing staff.*). Caregivers were asked to evaluate the health care center or clinic in relation to these items. All items were rated on a 5-point Likert scale (1 = bad, 5 = excellent).

To assess some of the psychometric properties of this measure in our sample, a principal axis factor analysis (PAF with an oblique rotation) was conducted (KMO = 0.962, Bartlett's χ^2 (210) = 6356.963, $p < 0.001$). Based on the Kaiser criterion, the expected two factors were extracted accounting for 67.92% of the total variance: (1) satisfaction with

medical care (n = 18 items, α = 0.969) and (2) satisfaction with nursing care (n = 3 items, α = 0.940).

Following the procedures proposed by Ferreira and Raposo (2015), the satisfaction scores were converted in a 0% to 100% scale, only taking in consideration the valid answers (i.e. excluding the "not applicable"). Scores closer to 100% indicated higher satisfaction.

Socio-demographic and clinical information. The protocol included several questions assessing participants' socio-demographic information. Some of them were only used to characterize the sample: sex, age, number of children, marital and employment status. Other questions were specifically used to assess the criterion validity of the CPC-Adherence Scale, namely, country of origin, years of education, profession and monthly household income (answered by all the participants); years and legal situation in Portugal (only answered by immigrant caregivers).

A Multiple Correspondence Analysis (MCA) was used to construct a standardized index for socio-economic status (SES). An MCA was performed because educational level, profession and income were categorical variables. An index with good internal reliability was obtained (α = 0.812). The higher the score the higher the SES (Min = -3.80, Max = 0.98).

The data collection protocol also included questions that assessed caregivers' experiences with CPC: use of public versus private services and frequency of child health book reading, on a Likert-scale from 1-never to 5-always (i.e. "*Do you usually read the written recommendations of the child health book?*").

Procedure and data collection

This study complied with the ethical procedures proposed by the ethics committee of ISCTE-University Institute of Lisbon. Participants were approached at key-institutions (e.g. kindergartens) and groups of parents in social media (e.g. Facebook, blogs). Those who had children aged between 2 and 6 years old were requested to collaborate on a study about well-child visits. This inclusion criterion was used because the CPC-Adherence Scale includes questions essentially related with babies and toddlers. The Boards of every institution provided an informed consent to collaborate with our research. Participants were also provided information about the study's goals, their voluntary participation, confidentiality and anonymity of data, before giving their written consent to participate.

The data collection protocol was available both electronically (using Qualtrics software) and in paper format, to ensure a more heterogeneous pool of participants and also include caregivers who potentially did not have access to the internet. This protocol was individually filled out by the children's main caregiver (the one who went more often to CPC services). The first part of the protocol was composed by the CPC-Adherence Scale. After the presentation of this measure, participants were presented with the questions regarding their experiences in CPC, the Europep and questions regarding their socio-demographic characteristics. To compensate caregivers' participation in the study six 25€ vouchers were randomly allotted.

Statistical analysis

The CPC-Adherence Scale item distributions were assessed in the total sample (N = 662), including items means, standard deviations (SD), skewness and kurtosis coefficients and respective standard errors (see results-Table 6). To identify the CPC-Adherence Scale underlying structure an Exploratory Factor Analysis (EFA with an oblique rotation) was conducted with a random subsample of about half of the original sample (n = 326). Although the Kaiser criterion is most commonly used, the scree test (Cattel, 1966) and parallel analysis (Costello & Osbone, 2005; O'Connor, 2000) were privileged since they were more accurate. Items with loadings below |0.4| were progressively eliminated. Given the high levels of item skewness we also performed a categorical principal components analysis (CatPCA) using items as ordinal variables to validate the results obtained by the PCA.

Then, a confirmatory factor analysis (CFA) was performed using the maximum likelihood (ML) method, with a random subsample (n = 336). A CFA was used to test the identified EFA structure of the CPC-Adherence Scale. Several goodness of fit indices were used to determine how well the model fit the sample data. These were: the chi-square (χ^2) and the normed chi-square (χ^2/df), which indicated a good fit if $\chi^2/df \leq 2$ (Schreiber, Nora, Stage, Barlow & King, 2006); the Comparative Fit Index (CFI) > 0.90 and, the Tucker–Lewis Index (TLI) > 0.90 (Kline, 2011); the Parsimonious Comparative Fit index (PCFI) and the Parsimonious Normed Fit index (PNFI), which should be higher than 0.60 (Hair et al., 2010); and, the Root Mean Square Error of Approximation (RMSEA) ≤ 0.06 (Hu & Bentler, 1999). A non-parametric method (bootstrap) was also performed in order to validate the results obtained by maximum likelihood.

The criteria-related validity of the CPC-Adherence Scale was assessed using Pearson

correlations, Chi-Square and T-student tests. Data analysis was conducted by IBM-SPSS Statistics 24.0 and AMOS 24.0 (Arbuckle, 2011).

Results

Participants' characteristics

Six hundred and sixty-two parents (93.4% women) of children aged between two and six years participated in this study. They were mainly Portuguese (91.4%), in a marital relationship (84.1%), and were aged between 17 and 50 years old (M = 35.3, SD = 4.9). They had between 1 and 5 children, but most of them were parents of one or two (88.7%). The majority was employed (85.5%). They had on average 15.3 years of education (SD = 2.8), the majority had a specialized profession (60.6%) and a monthly household income higher than 1500€ (53.2%). Most of the parents reported using private health services (60.1%) and reported reading the child health book recommendations very often (M = 4.30, SD = 0.89). More detailed sample characteristics are presented in Table 5.

Table 5. Participants' socio-demographic characteristics and comparison tests between Portuguese and immigrant caregivers

Variables		Global sample N=662 (100%)	Portuguese parents n=499 (91.4%)	Immigrant parents n=47 (8.6%)	Test value [a)]
Participant's Sex	Men	36 (6.6%)	34 (6.8%)	2 (4.3%)	0.456
	Women	513 (93.4%)	465 (93.2%)	45 (95.7%)	
Marital status	In a marital relationship	459 (84.1%)	417 (83.9%)	39 (84.8%)	0.024
	Not in a marital relationship	87 (15.9%)	80 (16.1%)	7 (15.2%)	
Age	Mean (SD)	35.3 (4.9)	35.3 (4.8)	35.0 (5.7)	0.482
	Minimum-maximum	17-50	17-50	22-49	
Number of children	Mean (SD)	1.7 (0.7)	1.7 (0.7)	1.7 (0.8)	-0.466
	Minimum-maximum	1-5	1-5	1-3	
Employment	Employed	465 (85.5%)	427 (86.3%)	36 (78.3%)	2.184
	Unemployed/retired	79 (14.5%)	68 (13.7%)	10 (21.7%)	
Years of education	Mean (SD)	15.3 (2.8)	15.4 (2.7)	14.7 (3.7)	1.360
	Minimum-maximum	2-30	9-30	2-26	
Profession	Specialized (e.g. doctor, teacher)	294 (60.6%)	275 (61.8%)	17 (44.7%)	18.219***
	Intermediary level (e.g. administrative, salesman)	124 (25.6%)	117 (26.3%)	7 (18.4%)	
	Less/non specialized (e.g. cleaning maid, store employee)	67 (13.8%)	53 (11.9%)	14 (36.8%)	
Monthly household income	<500€	12 (2.2%)	10 (2.0%)	2 (4.3%)	14.387**
	500€-750€	53 (9.9%)	42 (8.6%)	11 (23.9%)	
	750€-1000€	64 (11.9%)	55 (11.2%)	8 (17.4%)	
	1000€-1500€	123 (22.9%)	117 (23.9%)	6 (13.0%)	
	>1500€	286 (53.2%)	265 (54.2%)	19 (41.3%)	
Index of SES	Mean (SD)	-0.08 (1.03)	-0.04 (1.09)	-0.73 (1.41)	3.260*
	Minimum-maximum	-3.80-0.98	-3.80-0.98	-3.48-0.98	

Note. [a)] Chi-square test with Monte Carlo estimation was conducted to compare the two groups of parents through a dependent categorical variable and Student's T-Test for independent-samples was conducted for dependent quantitative variables. * $p <= 0.05$ ** $p < 0.01$ *** $p < 0.001$

Immigrant parents (n = 47) were mostly Brazilian (55.3%) and were in the country with legalization in process or resident permission (54.5%). They had arrived to Portugal on average 15.2 years ago (*SD* = 12.5, Min < 1, Max = 42). As presented in Table 5, Portuguese parents presented higher SES (*M* = -0.04, *SD* = 1.09) than immigrant parents (*M* = -0.73, *SD* = 1.41; t (51.284) = 3.260, *p* = 0.002). Also Portuguese parents reported a higher proportion of use of private health-care services (64.0%), as compared to immigrant parents (29.8%; $\chi^2(2) = 22.814$, $p < 0.001$).

Construct validity

Items descriptive analysis. The analysis of the distribution of the items on the total sample (N = 662) showed that participants' responses covered the scale range for every item (Min = 1, Max = 5). The mean of the items ranged between 3.54 and 4.70 ($0.81 \leq SD \leq 1.35$) (Table 6).

Table 6. Items descriptive analysis for the global sample (N = 662) and EFA loadings (n = 326)

Items To what extent do you follow or have followed each of the recommendations below in caring for your child?	M	SD	Skewness/SD	Kurtosis/SD	Not recommended	Factor Loadings	
						Adherence to a safe psychomotor development	Adherence to nutritional counseling
20-In car trips transport the baby/child in a car seat suitable for his/her age or size.	4.70	0.86	-30.84	41.81	23 (3.5%)	**.862**	-.172
3-Encourage the child to play.	4.62	0.83	-27.93	39.70	30 (4.5%)	**.831**	-.192
16-Keep the baby/child away from toxic products he/she can drink or eat (e.g. medicines, detergents).	4.65	0.85	-27.31	34.22	26 (3.9%)	**.829**	.018
7-Teach the child to speak correctly in his/her native language (e.g. telling stories, reading books).	4.40	0.99	-19.25	16.16	38 (5.7%)	**.691**	-.009
23-Avoid giving the child food/drinks with too much salt, sugar or fats.	4.47	0.81	-17.09	13.53	11 (1.7%)	**.674**	-.075
8-Avoid giving children younger than 3 years old small objects that can cause asphyxia (e.g. marbles, necklaces).	4.50	0.93	-21.74	21.03	26 (3.9%)	**.663**	-.086
12-Protect electric plugs to prevent shocks and burns.	4.42	1.08	-19.62	13.73	32 (4.8%)	**.655**	.154
19-Around 18 months old start potty training.	3.54	1.30	-5.48	-4.36	66 (10.0%)	**.637**	.047
11-Around 12 months old, encourage the child to walk.	4.17	1.10	-13.45	6.15	51 (7.7%)	**.598**	.039
15- Around 15 months old, teach the child good sleeping habits (e.g. to go bed early or to go to bed at the same time every day).	4.04	1.12	-10.72	1.56	32 (4.9%)	**.586**	.282
22-By the age of 2 years old, encourage the child to stop using a pacifier.	3.69	1.26	-4.98	-3.99	35 (5.3%)	**.582**	.163
18-Brush the child's teeth as soon as he/she starts teething.	4.21	1.04	-12.80	4.03	27 (4.1%)	**.560**	.041
10-When the child presents light symptoms use other measures besides medication (e.g.: warm bath to lower a fever, massages on the belly to alleviate colic).	4.28	0.92	-13.34	6.66	13 (2.0%)	**.477**	.276
14-Go with the child to another doctor or health service that is advised (e.g. medical specialist).	4.13	1.20	-11.59	0.84	29 (4.4%)	**.428**	.322
21-From 12 months old, give the child meals similar to those of the family.	4.36	0.87	-14.84	9.96	9 (1.4%)	.036	**.612**
13-Until 12 months old, give the child only the foods that are recommended in the routine medical appointments.	4.19	0.91	-12.56	5.25	19 (2.9%)	.125	**.575**
6-When the child has symptoms such as fever or colic (mild symptoms) give him/her the medicines you are advised.	4.13	1.13	-12.51	2.92	13 (2.0%)	-.157	**.539**
9- Until 12 months old, give the baby only one new food per week.	3.80	1.22	-7.65	-1.89	55 (8.3%)	.161	**.532**
17-Avoid giving the child cow's milk before 12 months old.	4.50	1.02	-21.70	18.94	28 (4.2%)	.081	**.487**
5-From 4 months old, give the baby new foods in the order that is recommended (e.g. first meat and then fish).	2.28	1.21	-16.99	9.01	40 (6.0%)	-.027	**.447**
1-Breastfeed up to 4 months of age, without other type of food or water.	4.32	1.16	-16.39	8.18	37 (5.6%)	Excluded from the final model	
2-Do not cover the umbilical cord stump with diapers, bandages or dressings.	4.48	1.09	-22.06	18.42	30 (4.5%)		
4-Avoid letting the baby/child alone in high places (e.g. couch, bed without bars, stairs, windows).	4.57	0.96	-27.04	32.59	20 (3.0%)		

Note. Items numbers correspond to their order of presentation in the questionnaire.

As presented in Table 6, the distribution of most items presented high levels of skewness (skewness / *SE* skewness > |1.96|) and kurtosis (kurtosis / *SE* kurtosis > |1.96|). All

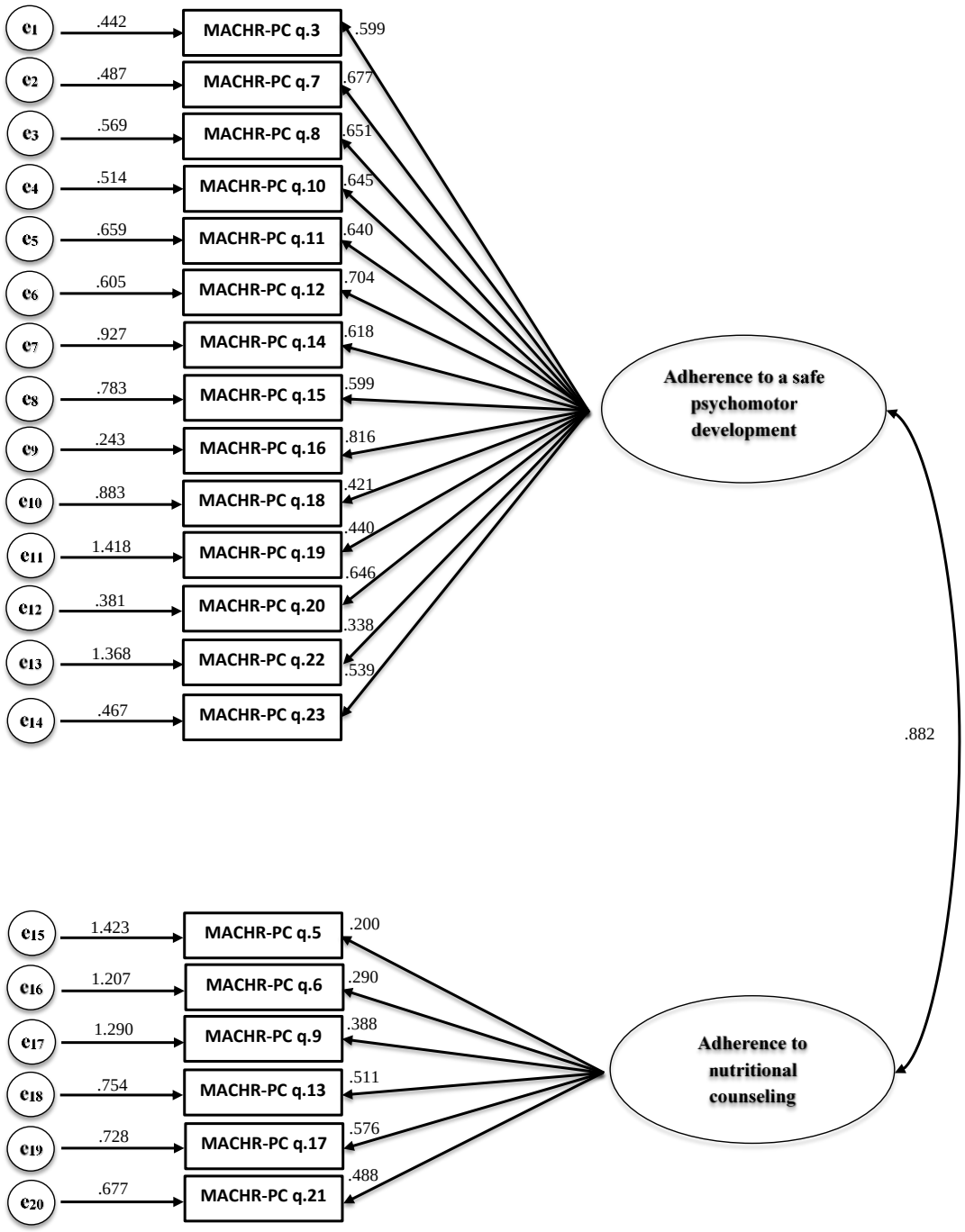
items were identified at least once as not having been recommended (Min = 9, Max = 66). Items that were reported as being more recommended were associated with healthy food (i.e. *Avoid giving the child food/drinks with too much salt, sugar or fats)* and child symptom relief (i.e. *When the child has symptoms such as fever or colic (mild symptoms) give him/her the medicines you are advised.*; *When the child presents light symptoms use other measures besides medication (e.g.: warm bath to lower a fever, massages on the belly to alleviate colic)*). The item least recommended was related with the potty training (i.e. *Around 18 months old start potty training*).

Regarding vaccination, participants' responses covered the two answer options both for free vaccines (adherence = 99.2%; non-adherence = 0.8%) and paid vaccines (adherence = 87.7%; non-adherence = 12.2%).

Exploratory factor analysis. Results showed that the first solution extracted five factors with eigenvalues above 1 (Kaiser's criterion). Nevertheless, the scree test and the parallel analysis converged in a 2-factor solution (KMO = 0.865; Bartlett's test χ^2 (190) = 1211.602, $p <$ 0.001), accounting for 42.84% of the total variance (Table 6): 1) Adherence to a safe psychomotor development (14 items); 2) Adherence to nutritional counselling (6 items). The extracted factors presented a moderate and positive correlation (r = 0.532, $p < 0.001$).

Confirmatory factor analysis. The two-factor model was tested through a CFA (Figure 5). Results showed that the fit of the data to the two-factor structure was good (χ^2 (158) = 279.365, $p < 0.001$; χ^2/df = 1.768; CFI = 0.94; TLI = 0.91; PCFI = 0.70; PNFI = 0.65; RMSEA = 0.05). All items loaded significantly on their corresponding factor ($p < 0.001$).

Figure 5. CPC-Adherence Scale 2-factor model: Confirmatory Factor Analysis



Note. Standardized loadings are reported.

CPC-Adherence Scale sensitivity and reliability

Following similar scoring procedures for EUROPEP sub-dimensions (Ferreira & Raposo, 2015), the values of each factor of adherence were calculated by a weighted sum, in which the "not recommended/applicable" answers were not included. These scores were also converted from a scale from 1 (never) to 5 (always) to a scale from 0% to 100%, in order to increase their sensitivity.

Reported adherence to a safe psychomotor development ranged from 16.7% to 100.0% and reported adherence to nutritional counselling ranged from 20.8% to 100.0%. The two factors presented mean values corresponding to a relatively high perceived adherence to recommendations for a safe psychomotor development (M = 82.16, SD = 16.46) and to nutritional counselling (M = 80.50, SD = 15.95).

The internal consistency of the factors was assessed through the Cronbach reliability coefficient. Cronbach's alpha values were 0.894 for adherence to a safe psychomotor development and 0.608 for adherence to nutritional counseling. Considering that a small number of items per factor (usually less than 7) can lead to a lower alpha, the mean inter-item correlations for the two factors were also calculated (Clark & Watson, 1995). Results showed that the mean inter-item correlations for the two factors fell in the recommended range 0.15-0.50: 0.209 and 0.394, respectively.

Criterion-related validity

Table 7 presents the relationship between criteria-related variables and the two dimensions of caregivers' adherence. As their adherence to free vaccines was nearly 100%, Table 7 only reports correlates of caregivers' adherence to paid vaccines.

Table 7. Relationship between caregivers' adherence to CPC recommendations and criteria-related variables

Variables	Adherence to a safe psychomotor development	Adherence to nutritional counselling	Adherence to paid vaccines	Non-adherence to paid vaccines	Test value [a)]
	Pearson r		%, M, SD		
SES index	-0.065	0.025	0.09 (0.82)	-1.21 (1.50)	7.628***
Frequency of reading child health book recommendations	0.172***	0.104**	4.31 (0.88)	4.29 (0.097)	0.211
Satisfaction with medical care	0.059	0.093*	83.42 (21.10)	57.81 (37.23)	5.308***
Satisfaction with nursing care	0.105*	0.128**	82.59 (21.03)	59.36 (38.58)	4.741***
Immigrant status					
Portuguese [b)]	-0.004	-0.084*	92.7%	83.6%	6.258*
Immigrant			7.3%	16.4%	
Immigrants' number of years in the country	0.025	0.133	17.31 (12.27)	11.67 (12.16)	1.234
Immigrants' legal situation in the country					
Legalization in process/resident permission [b)]	-0.110	-0.315*	50.0%	66.7%	0.795
Portuguese nationality/European passport			50.0%	33.3%	

[a)] Chi-square test with Monte Carlo estimation was conducted to compare the two groups of parents for a dependent categorical variable and Student t-tests for independent-samples were conducted for dependent quantitative variables. *p <= 0.05 ** p < 0.01 *** p < 0.001

[b)] The dichotomous variables were coded as dummy variables; the marked category represents the baseline.

Caregivers' adherence and knowledge of CPC recommendations. As presented in Table 7, caregivers' adherence to a safe psychomotor development and nutritional counselling presented a positive and weak association with their frequency of reading child health book recommendations. Nevertheless, caregivers who reported adhering to paid vaccines did not show significant differences in their frequency of reading the child health book recommendations as compared to those who did not adhere to paid vaccines.

Caregivers' adherence and satisfaction with care. As presented in Table 7, caregivers' adherence to a safe psychomotor development and nutritional counselling showed a positive and weak association with their satisfaction with nursing care. Caregivers' adherence to nutritional counselling was also positively correlated with their satisfaction with medical care.

As for adherence to vaccination, caregivers who reported adherence to paid vaccines reported higher levels of satisfaction with medical (t (66.139) = 5.308, p < 0.001) and nursing care (t (70.338) = 4.741, p < 0.001).

Caregivers' adherence and SES. Caregivers who reported adhering to paid vaccines reported higher SES (t (86.799) = 7.628, $p < 0.001$). Caregivers' SES was not significantly correlated with their adherence to a safe psychomotor development recommendations and nutritional counselling.

Caregivers' adherence, immigrant status and conditions in the host country. In Table 7 a moderate and negative correlation is presented between caregivers' adherence to nutritional counselling and their immigrant status; immigrant caregivers adhered less to nutritional counselling (M = 76.16, SD = 17.68) than Portuguese caregivers (M = 81.02, SD = 16.22). Portuguese caregivers also reported higher adherence to paid vaccines, as compared with immigrant caregivers. No significant correlations were found between caregivers' adherence to a safe psychomotor development and their immigrant status.

Among immigrant caregivers, adherence to CPC recommendations was only weakly and significantly associated with their legal status, but not the number of the years in Portugal. Immigrant caregivers with Portuguese nationality or European passport reported lower adherence to nutritional counselling (M = 68.68, SD = 17.83), as compared to immigrant caregivers with legalization in process or resident permission (M = 80.17, SD = 17.45). Caregivers' immigrant status did not show any significant relationship with their adherence to a safe psychomotor development or to paid vaccines.

Discussion

The present study aimed to develop and validate a measure of caregivers' adherence to CPC health recommendations (CPC-Adherence Scale), especially focused on babies and toddlers. Overall, our findings suggest that the CPC-Adherence Scale is a valid and reliable measure, sensitive to the specificities of caregivers in vulnerable conditions. A detailed discussion of the CPC-Adherence Scale psychometric properties, as well as a reflection on the limitations and implications of this work for future research directions now follows.

Content, construct validity and reliability

Drawing upon experts' opinions, the CPC-Adherence Scale showed good content validity, as its items cover the whole and wide range of CPS activities and recommendations. Despite the large diversity of CPC recommendation topics, the exploratory and confirmatory factor analyses supported a 2-factor solution: 1) Adherence to a safe psychomotor development; 2) Adherence to nutritional counselling. Thus, the CPC-Adherence Scale is

constituted by these two main dimensions, which indeed represent the two principal objectives of well-child visits, namely, monitoring children's physical and psychomotor development (DGS, 2013).

"Adherence to a safe psychomotor development" is a broad dimension that includes items essentially related with activities that promote a healthy psychomotor development (e.g. play, speak, walk), while preventing the most common child accidents/injuries that may occur during these activities (e.g. suffocation, burns). Because of its focus on safety issues, this factor also contained items associated with symptom prevention or relief (e.g. dental caries, fever).

"Adherence to nutritional counselling" is a more specific factor that encompasses the recommendations often transmitted to caregivers when their child's physical development (e.g. weight, height) is being assessed. This dimension includes the item *When the child has symptoms such as fever or colic (mild symptoms) give him/her the medicines you are advised*, which may not be immediately recognized as a diet recommendation. This may be due to the fact that young children's cramps are usually associated with their feeding practices.

Both factors showed a high positive correlation. This may be accounted for by the fact that several nutritional recommendations may also bear a safety focus (e.g. the early detection of diet intolerances or allergies) and also contribute to the development of certain psychomotor skills (e.g. use of cutlery when children start sharing the meals with the family).

With regards to the internal consistency and sensitivity of the CPC-Adherence Scale, the results were quite positive. Both factors, and especially the "adherence to a safe psychomotor development", showed good values in the Cronbach's alpha and in the mean inter-item correlations. The majority of the items presented a skewed distribution to the higher end of the scale (i.e. higher perceived frequency of adherence), probably reflecting the nature of what is being measured, instead of poor item quality. Indeed, although participants' answers could well be influenced by social desirability, it is expectable that most caregivers would recognize the relevance of CPC recommendations, hence, reporting high adherence. Nevertheless, the transformed scores, ranging from 0% to 100%, showed larger response ranges, reflecting a higher sensitivity to the detection of more subtle differences between caregivers' adherence behaviors (Fok & Henry, 2016).

Criterion-related validity

As expected, caregivers who reported a higher frequency of reading the child health book recommendations reported higher levels of adherence (H1). In line with previous studies (Levesque et al., 2013; Travassos & Martins, 2004), our findings suggested that more knowledge of CPC recommendations was positively associated with increased adherence behaviors. Nevertheless, caregivers' knowledge of CPC recommendations was specifically associated with adherence to a safe psychomotor development and nutritional counselling, but not with (paid) vaccination. Indeed, the child health book contains some information about the national vaccination plan, but not explicitly about paid vaccines (DGS, 2013).

Also, as expected, caregivers who reported more satisfaction with care were those who reported higher adherence (H2). Satisfaction with medical care was only related with adherence to safe psychomotor development recommendations and paid vaccines. This suggests a perceived centrality of doctors' interventions at these levels, and not so much at the level of nutritional counselling. Whereas satisfaction with nursing care was positively associated with adherence to safe psychomotor development recommendations, nutritional counselling and vaccination. This is not surprising considering that nurses play an important role in promoting public health, often being major patient counsellors/educators concerning disease prevention and promotion of health behaviors change (Kemppainen, Tossavainen & Turunen, 2013).

Caregivers of a lower SES reported lower levels of adherence to paid vaccines, as compared to those with a higher SES, indicating that our third hypothesis (H3) was also partially confirmed. Our results come in line with previous studies showing the influence of SES on adherence behaviors, especially regarding pharmacological treatments (Bosworth at al., 2006; Martin et al., 2010). In this case, paid vaccines assume the status of "prescribed medication", where its high costs may contribute to lower adherence. Contrary to what has been shown in previous studies (Tijerina, 2006, 2009), caregivers' SES did not influence adherence to nutritional counselling. This may be accounted for the fact that CPC nutritional recommendations may not imply a significant increase in family expenses, as tends to happen with other recommended dietetic restrictions (e.g. hemodialysis treatment; Tijerina, 2006, 2009).

As expected, as compared to non-immigrants, immigrant caregivers reported lower levels of adherence (H4), especially in what concerns nutritional counselling and paid vaccines. In fact, some feeding practices are particularly influenced by cultural health beliefs,

which may lead to lower adherence, especially when these beliefs contrast with some health professionals' recommendations (Gurung, 2006; McNicholas, 2012; Mourão & Bernardes, in press). Concerning paid vaccines, it is important to highlight that many individuals of minority ethnic groups most often present lower socio-economic conditions (Morrison & Bennet 2009; Straub 2012); as ended up to happen with our subsample of immigrants when compared with the Portuguese subsample. Thus, for certain CPC recommendations, caregivers' SES may be a determinant of adherence that goes over and beyond their immigrant status; an assumption that should be further explored by a specific research about predictors of immigrants' adherence (versus non-immigrants). This result also raises the question of whether CPC health professionals recommend paid vaccines to immigrants or lower income families to the same extent as they do for non-immigrants or higher income families.

As hypothesized, immigrants' conditions in the host country may also influence their adherence behaviors (hypothesis 4); in this case, it was immigrants' legal status in Portugal that was associated with adherence to nutritional counselling. Nevertheless, our results contrast with our initial hypothesis, as the caregivers with Portuguese nationality or European passport were the ones that reported lower adherence as compared to those with legalization in process or resident permission. This conclusion may reflect the influence of social desirability among participants who were in a more vulnerable condition in the host country. It could also indicate that caregivers with legalization in process or resident permission may be adopting an assimilative or integrative orientation towards the host culture (Berry, 1997), reflected on a high identification with the Portuguese feeding practices and recommendations.

Overall, our findings indicate that CPC-Adherence Scale had a good criteria-related validity, since our initial hypotheses were mostly confirmed.

Limitations, implications and directions for future research

Some limitations can be pointed out to our study, which are in turn related to future directions for research. First, the CPC-Adherence Scale convergent validity was not assessed, as there were no other instruments that measured similar constructs. Second, some sampling issues should be noted, as they bear some challenges to the generalization of our findings. Despite the considerable sample size, the participants' demographics were mostly coincident with a medium to high SES. Thus, future studies should include a more heterogeneous sample in terms of caregivers' socio-economic conditions. Third, although our results pointed to CPC-

Adherence Scale sensitivity to certain immigrant caregivers' conditions, this should be further explored with a larger sample of immigrants, ideally with the same cultural background. Finally, although many Portuguese CPC service guidelines may match the CPC service guidelines from other European countries, the extent to which the CPC-Adherence Scale is a valid measure in other cultures is yet to be investigated.

Despite the aforementioned limitations, theoretical, methodological and practical implications can be drawn from this study. From a theoretical and methodological point of view, the conceptualization and operationalization of the two sub-dimensions of the broader construct of adherence to CPC recommendations is quite innovative. It also goes beyond the more traditional biomedical research about therapeutic adherence, which has been mainly focused on adherence to a given pharmacological treatment, at the exclusion of a biopsychosocial or preventive approach with a focus on the adoption of healthy behaviors and/or lifestyle changes.

Also, from a practical point of view, one of the greatest strengths of this study is to provide a valid, reliable and sensitive tool to measure reported caregivers' adherence to CPC recommendations; which is to the best of our knowledge the first measure developed to this purpose. Thus, as of now, the CPC-Adherence Scale can be used both in clinical and in research contexts, and ultimately contribute to promote better adherence behaviors particularly in the daily CPC practices. These applied advantages extend to the fact that the CPC-Adherence Scale seems to be sensitive to the adherence behaviors of caregivers in more vulnerable conditions.

In sum, the CPC-Adherence Scale is an innovative, valid and reliable tool to assess caregivers' adherence to CPC health recommendations regarding two major domains – safe psychomotor development and nutritional counselling. This measure bears important contributions to the development of future research on adherence behaviors from a primary prevention perspective. It also may contribute to the assessment of interventions aiming at promoting caregivers' adherence to CPC recommendations, which may ultimately protect and promote children's health.

5. PSYCHOSOCIAL PREDICTORS OF BRAZILIAN CAREGIVERS' ADHERENCE TO CHILD PRIMARY CARE RECOMMENDATIONS

This chapter is based on the paper: Mourão, S., Bernardes, S. F., & Guerra, R. (in preparation). Brazilian Caregivers' Adherence to Child Primary Care Recommendations: The predictive role of psychosocial determinants.

Abstract

Several psychosocial determinants, identified at different but interrelated levels of analysis, have been associated with immigrants' (pharmacological) treatment adherence. However, little is known about the predictive role of these psychosocial variables on immigrants' adherence to preventive health recommendations. Based on a previous qualitative research, this study aimed to test a multilayered theoretical model which hypothesizes the predictive role of certain psychosocial determinants on immigrant caregivers' adherence to Child Primary Care (CPC) recommendations. A cross-sectional study was conducted, with 123 Brazilian immigrant parents of children aged between 2 and 6 years old. Data were collected by a paper or electronic protocol, composed by: 1) the *CPC-Adherence Scale*; 2) clinical and demographic questions; 3) the *Concerns about Medicine Subscale*; 4) measures that assessed the parental satisfaction (*EUROPEP*) and trust in care (*Trust in Physician Scale*); 5) indicators of cultural (mis)matches in child care practices and a measure of immigrants' own and perceived acculturation orientations. Psychosocial determinants at a structural level (*i.e.* socio-economic status, time or legal situation in Portugal) predicted immigrant caregivers' adherence to CPC recommendations that promote children's safe psychomotor development and paid vaccines. Concerns about pediatric medication (individual level) predicted immigrant caregivers' adherence to a safe psychomotor development recommendations. Cultural mismatches in the type of food (intergroup level) predicted their adherence to nutritional counselling. These results, by providing innovative empirical contributions, also may contribute to increasing CPC health professionals' multicultural sensitivity and competency.

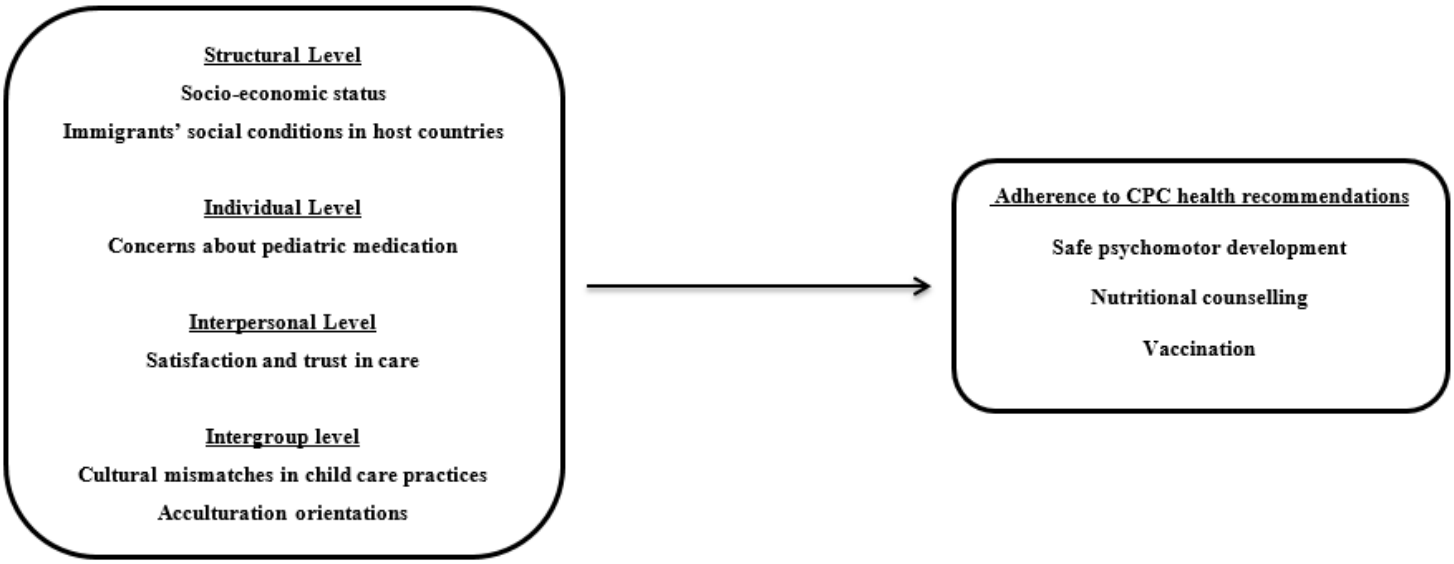
Keywords: Child primary care, health recommendations, immigrant caregivers, treatment adherence, psychosocial determinants

Introduction

Promoting immigrant caregivers' adherence to CPC health recommendations assumes particular relevance, not only because it ensures an optimal child development, but especially because it prevents important health-related problems traditionally more prevalent among immigrant or low-income children (e.g. overweight/obesity, dental caries, mental health issues; van Esso et al., 2010). However, immigrant families, especially from lower socio-economic conditions, often have trouble accessing or using primary care services (Ahmed et al., 2016; Dias et al., 2018) and/or adhering to (preventive) health professionals' recommendations (e.g. pharmacological treatment, injury prevention, healthy food; Heerman, et al. 2016; Kirkpatrick et al., 2012; Mourão & Bernardes, 2014). Indeed, our previous research concluded that immigrant caregivers reported lower adherence to nutritional counselling and paid vaccines when compared with Portuguese caregivers, which reinforces the evidence of their vulnerability in terms of non-adherence behaviors in the particular context of CPC (Mourão, Bernardes & Carvalho, submitted; please see Chapter 4).

Immigrants' adherence behaviors are often described as "non-intentional", as they may be influenced by broader social and cultural contexts (Dunbar-Jacob et al., 2012; Martin et al., 2010). Indeed, several psychosocial determinants have been associated with immigrant adults' (pharmacological) treatment non-adherence, which have been identified at different, but interrelated, levels of analysis (e.g. difficulties in the interpersonal relationships with health professionals; cultural mismatches in health-related ideologies; Mourão & Bernardes, 2014). However, little is known about the predictive role of these psychosocial variables on immigrant caregivers' adherence to CPC recommendations. This study addresses this empirical gap, by proposing to test a multilayered theoretical model (Figure 6), which hypothesizes the predictive role of some psychosocial determinants on immigrant caregivers' adherence to CPC recommendations.

Figure 6. Multilayered model of psychosocial determinants of Brazilian caregivers' adherence to CPC recommendations



The hypothesized relationships were mostly guided by a previous qualitative study (Mourão & Bernardes, in press; please see Chapter 2) and supported by some of the evidences detailed below. We also propose to investigate the relationships between immigrant caregivers' acculturation orientations and their adherence to CPC recommendations, as some theoretical approaches (Landrine & Klonoff, 2001; Dovidio et al., 2017) and recent evidences (Whittal & Rosenberg, 2015; Whittal, Hanke & Lippke, 2017) suggest that immigrants' acculturation orientations could influence their adherence behaviors. Thus, all the psychosocial determinants included in the model presented in Figure 6 will be detailed below, considering their identification at different, but interrelated levels of analysis.

Globally, the structural level includes socio-demographic characteristics of immigrant caregivers, which contextualize how their socio-economic position in the host society may influence their adherence behaviors. The individual level highlights the role of certain health beliefs as important intra-individual determinants of adherence behaviors, which have been widely conceptualized by the socio-cognitive models of health behavior change. The interpersonal level emphasizes the psychosocial determinants of adherence that are related to the quality of interpersonal relationships and communicative processes with health professionals. Finally, the intergroup level of analysis includes the cultural (mis)matches in health-related beliefs and acculturation orientations. To investigate all these relationships, we conducted a cross sectional study involving Brazilian immigrants in Portugal, as they are the most prominent immigrant group in the country (SEF, 2016).

Psychosocial determinants at a structural level

The socio-economic status (SES) is a classic determinant associated with several health behaviors, particularly because it can limit the access to material and social resources that are important in promoting and maintaining health (Gurung, 2006; Marmot, 2004; Straub, 2012; Taylor et al., 1997). Thus, difficult social and economic conditions have been identified as a potential predictors of non-adherence (Bosworth et al., 2006; Levensky & O'Donohue, 2006; Martin et al., 2010).

Indeed, evidence points out that immigrants' poverty, unemployment status or lack of health insurance may contribute to their non-adherence to pharmacological treatments or diet restrictions imposed by certain treatments (e.g. hemodialysis; Mourão & Bernardes, 2014). Similarly, our previous research concluded that the lower SES of immigrant (and non-immigrant) caregivers constitutes a barrier to their adherence to preventive CPC health recommendations, namely children's paid vaccines and nutritional counselling (Mourão & Bernardes, in press; please see Chapters 2 and 4). Thus, we expected that Brazilian caregivers of higher SES reported higher adherence to CPC recommendations (Hypotheses 1; H1).

Also at a structural level, some immigrants' social conditions in their host country have been shown to influence their access and use of health services. (e. g. legal status or time in the host country; Dias et al., 2018; Wafula & Snipes, 2014). Such social conditions could also influence some of their adherence behaviours (e.g. immigrant children use fewer prescription drugs than those born in the host country; Gimeno-Feliu et al., 2009). As such, we expected that Brazilian caregivers who had a permanent resident permission or Portuguese citizenship and/or who had been in the country for longer periods of time would report higher adherence to CPC recommendations, as compared with immigrant caregivers with a legalization in process or temporary resident permission and/or who had been in the country for shorter periods of time (Hypothesis 2; H2).

Psychosocial determinants at individual level

Several socio-cognitive models of health behavior change have been used to understand why people make conscious health decisions, including those that are related with adhering or not to health professionals' recommendations. These models highlight the proximal role of several intra-individual determinants as the main potential predictors of adherence behaviors (Brannon et al., 2014; Byrne, 2013). Evidences show that relevant associations were found between adherence behaviors and several health beliefs, including

those that are related with medicines necessity and concerns about its use (Holmes et al., 2014).

In the specific case of immigrants, their negative beliefs towards certain medicines (e.g. counterfeit products in their origin countries) have been associated with the rejection of some pharmacological treatments recommended in the host countries (Hakonsen & Toverud, 2011). Similarly, our previous research has concluded that immigrant caregivers' have particular beliefs about the ineffectiveness or harmful effects of pharmacological treatments usually recommended by the Portuguese CPC to relieve most common child's symptoms (e.g. fever, colic, cough). These perceptions constitute a relevant barrier to their adherence to certain CPC recommendations (Mourão & Bernardes, in press; please see Chapter 2). Accordingly, and as presented in Figure 6, we hypothesized that Brazilian caregivers' who reported higher concerns about pediatric medication recommended by CPC services would report lower adherence to such CPC recommendations (Hypothesis 3; H3).

Psychosocial determinants at interpersonal level

Our previous research supports the theoretical assumption that the adequacy of health professionals' competencies may constitute a potential predictor of adherence (Levensky & O'Donohue, 2006). First, (immigrant and non-immigrant) caregivers' perceptions about health professionals' technical and relational competencies were identified as an important facilitator of their adherence behaviors, namely to general health advice, nutritional counselling and pharmacological treatments for symptom relief (Mourão & Bernardes, in press; please see Chapter 2). Also (immigrant and non-immigrant) caregivers' satisfaction with care has been positively associated with their adherence to children's safe psychomotor development, nutritional counselling and paid vaccines (Mourão, Bernardes & Carvalho, submitted; please see Chapter 4). These findings go in line with more general research that points to a positive relationship between immigrants' satisfaction or trust in care and their adherence behaviors (Taylor et al., 2016; Tucker et al., 2011).

Indeed, individuals' satisfaction and trust in care are often used as indicators of the quality of communicative processes and interpersonal relationships with health professionals (Ha et al., 2010; Hall & Rotter, 2011; Thom et al., 2004; Zolnierek & DiMatteo, 2009), and so have also been associated with individuals' adherence behaviors, especially in what concerns pharmacological treatments (Dang et al., 2013; Hillen et al., 2011; O' Rourke & O' Brien, 2017; Sendt et al., 2015). Drawing upon such findings, and as presented in Figure 6, we

hypothesized that immigrant caregivers who perceived higher levels of satisfaction with medical and nursing care (Hypothesis 4; H4), or higher levels of trust in the physician (Hypothesis 5; H5), would report higher adherence to CPC recommendations.

Psychosocial determinants at an intergroup level

The interpersonal relationships and communication processes in health-care settings may also bear latent cultural dimensions, which even if not directly expressed, can have an effect on adherence behaviors (Gurung, 2006; Rodríguez-Gómez & Salas-Serrano, 2006). This is particularly relevant when the immigrants' cultural values, beliefs or practices contrast with health professionals' recommendations or with the general cultural health-related ideologies of their host country (Erger & Marelich, 2004; Landrine & Klonoff, 2001; Martin et al., 2010; McQuaid & Landier, 2017; McNicholas, 2012).

Evidences showed that the abovementioned theoretical assumptions are particularly relevant to understand immigrants' adherence behaviors; it was found that immigrants' favorable beliefs regarding traditional methods widely used in their countries of origin (e.g. herbs, home treatments, folk healers) may compete with prescribed treatment plans and, consequently, account for a lower adherence to the latter (Bäckström, 2009; Chun & Chesla, 2004; Hannan, 2015). Also, the cultural symbolism of food abundance as a signal of social gathering and quality of life may have a negative impact on adherence to recommendations for more restrictive diets (Bosworth et al., 2006; Chun & Chesla, 2004; Gurung, 2006).

In the same line of thought, our previous research concluded that immigrant caregivers reported cultural mismatches between child health practices that are traditionally used in their countries of origin versus practices recommended by the Portuguese CPC services (e.g. children's feeding practices and methods of symptom relief; Mourão & Bernardes, in press). These perceptions constitute a relevant barrier to their adherence, namely in what concerns the recommended pediatric medication and children's nutritional counselling (Mourão & Bernardes, in press; please see Chapter 2). Accordingly, we hypothesized that Brazilian caregivers who perceived higher cultural mismatches between certain child care practices (i.e. traditionally used in their country of origin versus recommended in the Portuguese CPC services) would report lower adherence to CPC recommendations (Hypotheses 6; H6).

Previous evidences (Bäckström, 2009), including the ones from our previous work (Mourão & Bernardes, in press; please see Chapter 2), also found that immigrants tend to hide from health professionals the adoption of some the traditional practices for fear of their

negative attitudes. These may to some extent reflect perceived experiences of prejudice and discrimination on health services, which are important predictors of immigrants' acculturation processes, i.e. cultural and psychological changes that occur as a result of the contact between two or more different cultural groups (Arends-Tóth & van de Vijver, 2006; Berry, 2005). These findings may suggest higher levels of discrimination or prejudice against minorities with higher (versus lower) desire to maintain traditional health practices widely used in their heritage culture (Landrine & Klonoff, 2001; Zagefka et al., 2014). Thus, minorities' perceptions of discrimination may generate high levels of mistrust regarding the medical system and health professionals as representatives of the majority group, hence undermining patients' willingness to accept treatments or certain health recommendations (Dovidio et al., 2017; Landrine & Klonoff, 2001; McQuaid & Landier, 2017).

Based on the contextualization above, some evidences indeed suggest that immigrants' acculturation processes have been associated with different indicators of physical and mental health (e.g. rates of obesity, depression) and also with adherence to some healthy behaviors (e.g. physical activity), however with some contradictory or opposite results (i.e. both positive and negative associations were found (Fox et al., 2017; Mills et al., 2017). A possible explanation for this incongruence is the wide use of reductionist socio-demographic indicators (e.g. nationality, length of stay in the host country) as *proxy* measures of acculturation and/or the absence of a clear definition of the acculturation concept in relation with immigrants' health behaviors (Lopez-Class et al., 2011; Schwartz & Unger, 2017; Thomson & Hoffman-Goetz, 2009).

Even in the cases where a clear theoretical framework of immigrants' acculturation processes is presented, most of the approaches reflect a unidimensional view of acculturation, *i.e.* a process in which immigrants' assimilate (or not) the attitudes, values, beliefs or behaviors of the host society (Fox et al., 2017; Schwartz & Unger, 2017; Thomson & Hoffman-Goetz, 2009). In this case, it is not considered that immigrants' may maintain both the cultural heritage of their origin society and adopt the one from the host society, including in the context of interpersonal relationships with health professionals (Lopez-Class et al., 2011; Thomson & Hoffman-Goetz, 2009). Thus, the traditional use of *proxy measures* of acculturation or the unidimensional perspective of immigrants' acculturation processes is failing to address the role of cultural (mis)matches that may have particular influence on health behaviors.

Alternatively, the study of the relationship between immigrants' acculturation orientations and their health/adherence behaviors should be drawing upon a bidimensional theoretical framework, in which immigrants' acculturation orientations are assessed in terms of their dual preferences to maintain their origin culture and to contact with the host society (Berry, 1997). Additionally, immigrants' acculturation orientations should also be viewed as an interactionist process, which may involve changes both on immigrant's and host society's expectations (Bourhis et al., 1997). In this case, the acculturation outcomes are associated with the match or mismatch between immigrants' acculturation orientations (i.e. what they prefer in terms of culture maintenance and contact with the host society) and what they think that the host society prefers in this domain (Piontkowski et al., 2002).

Indeed, drawing upon a bidimensional and interactionist framework of acculturation, very recent research has investigated the role of acculturation orientations of immigrant patients and doctors as potential determinants of medical advice adherence (Whittal, Hanke & Lippke, 2017; Whittal & Lippke, 2016). This research showed that immigrants' acculturation orientations were significantly related with their reported adherence, via their perceptions of their doctors' expectations towards immigrants' acculturation orientations and their perceived quality of care. An integration orientation (i.e. favorable position both for the origin culture maintenance and contact with the majority group) was positively associated to immigrants' perception that the doctor accepted the maintenance of their previous culture, thus accounting for immigrants' higher perceived quality of care and medical advice adherence. Conversely, marginalization orientation (i.e. a rejection of the origin culture and also of contact with the host society) was negatively related to immigrants' perceptions that the doctor accepted maintenance of their previous culture, thus accounting for their lower perceived quality of care and medical advice adherence (Whittal et al., 2017). Based on this innovative approach drawing upon Berry's bidimensional model, we aimed to explore the relationships between Brazilian caregivers' adherence to CPC recommendations: (1) their own acculturation orientations and (2) their perceptions of the acculturation orientations held by the Portuguese host society members regarding Brazilian immigrants. As this part of the study was exploratory, no specific hypotheses were previously defined.

Method

Participants

One hundred and twenty three parents (95.1% mothers) of children aged between two and six years participated in this study. They were all Brazilian immigrants in Portugal, aged between 23 and 48 years old (M = 35.2, SD = 5.4). They had between 1 and 4 children, but most of them were parents of one or two (87.8%). About half of the participants were employed (54.5%), had on average 13.1 years of education (SD = 5.6) and had an equitable distribution by the three levels of professional specialization (i.e. specialized, intermediary level, less/non- specialized). The majority had a monthly household income between 500€ and 1000€ (33.3%) or between 1000€ to 1500€ (34.2%). Most of the participants reported using public CPC services (71.8%). Detailed sample characteristics are presented in Table 8.

Table 8. Brazilian caregivers' socio-demographic characteristics

Variables	Descriptive	
Parenthood	Mother	117 (95.1%)
	Father	6 (4.9%)
Child's age	Mean (SD)	3.9 (1.4)
	Minimum-maximum	2-6
Caregivers' Age	Mean (SD)	35.2 (5.4)
	Minimum-maximum	23-48
Number of children	Mean (SD)	1.6 (0.8)
	Minimum-maximum	1-4
Employment status	Employed	66 (54.5%)
	Unemployed	55 (45.5%)
Years of education	Mean (SD)	13.1 (5.6)
	Minimum-maximum	1-35
Profession	Specialized (e.g. administrators/entrepreneurs, lawyers, health professionals, teachers, psychologists, architects)	39 (34.2%)
	Intermediary level (e.g. administrative, salesmen, hairdressers/beauticians, cooks, advertising technicians)	39 (34.2%)
	Less/non specialized (e.g. cleaning maid, store employee, factory workers, assistants)	36 (31.6%)
Monthly household income	< 500€	4 (3.3%)
	500-1000€	40 (33.3%)
	1000-1500€	41 (34.2%)
	1500-2000€	15 (12.5%)
	> 2000€	20 (16.7%)
CPC service used	Public (i.e. health care center, family health unit, public hospital)	84 (71.8%)
	Private (i.e. pediatrician, clinic, private hospital)	31 (26.5%)
	Both	2 (1.7%)

Procedure and data collection

This study was approved by the Institutional Review Board of ISCTE-IUL. Participants were approached at key-institutions (e.g. kindergartens) and groups of immigrants in social media (e.g. Facebook, blogs). A "snowball" recruitment strategy was also used. Parents who were Brazilian immigrants in Portugal and had children aged between 2 and 6 years old were invited to collaborate on a study about well-child visits. This inclusion criterion was justified by the age range when the child well-visits occur more frequently. Consequently, this study focused on adherence to primary care recommendations essentially related with babies and toddlers.

Institutions provided their formal consent to participate in the study. Participants were informed about their voluntary participation, the confidentiality and anonymity of data, and provided their signed informed consent.

The data collection protocol, composed by the measures presented below, was available both electronically (using Qualtrics software) and in paper format, to ensure a more heterogeneous pool of participants and also include immigrant parents who potentially did not have access to the internet. This protocol was individually filled out by the children's mother/father (the caregiver who went more often to CPC services). Participants were offered the possibility of participating in a lottery (six 25€ vouchers were randomly allotted) to compensate their participation in the study.

Measures

The Child Primary Care Adherence Scale (CPC-Adherence Scale). The CPC-Adherence Scale is an instrument originally developed and validated in Portuguese that aims to measure the parental adherence to child health recommendations from primary care, essentially related with babies and toddlers (Mourão, Bernardes & Carvalho, submitted). It includes 20 items covering a variety of topics and activities related with health advice and anticipatory guidance in two main dimensions: 1) adherence to a safe psychomotor development, focusing on recommendations related to a healthy developmental surveillance and prevention of childhood injuries (14 items; e.g. Encourage the child to play; Protect electric plugs to prevent shocks and burns); 2) adherence to nutritional counselling, focusing on recommendations related to the introduction of food on children's diet (6 items; e.g. Until 12 months old, give the child only the foods that are recommended in the well-child visits.). The parents were asked to report to which extent they follow(ed) each recommendation in their children's care, on a

5-point Likert scale (from 1-never to 5-always). It was also given the possibility of selecting the "non-applicable" or "non-recommended" options. Regarding adherence to vaccination, caregivers were also asked the following yes-or-no questions "Has your child received all the vaccines that are recommended by the National Plan of Vaccination (Vaccine Bulletin)?" and "Has your child received other vaccines besides the ones recommended in the National Plan of Vaccination (Vaccine Bulletin)?".

To assess the psychometric properties of this measure in our sample, a confirmatory factor analysis (CFA) was performed, using the maximum likelihood method. The fit of the data to the two-factor structure was acceptable to good (χ^2 (153) = 293.236, $p < 0.001$; χ^2/df = 1.92; CFI = 0.86; TLI = 0.84; PCFI = 0.78; PNFI = 0.67; RMSEA = 0.09; Hair et al., 2010; Hu & Bentler, 1999; Kline, 2011; Maroco, 2010; Schreiber et al., 2006) and all items loaded significantly on their corresponding factor ($p < 0.001$). On the second factor, one item was excluded, which presented a low loading (i.e. *From 4 months old, give the baby new foods in the order that is recommended (e.g. first meat and then fish)*; standardized weight = 0.28).

The values of each factor of adherence (i.e. safe psychomotor development and nutritional counselling) were calculated by a weighted sum, in which the "not recommended/applicable" answers were not included. They were also converted from a scale from 1 (never) to 5 (always) to a scale from 0% to 100%. Both factors presented a good internal consistency, when "not recommended/applicable" answers were coded as the lower point of the scale (i.e. 1-never/absence of behavior): adherence to a safe psychomotor development (α = 0.902; 14 items); adherence to nutritional counselling (α = 0.773; 5 items).

Caregivers' Socio-Economic Status (SES) and Clinical Information. The first part of the questionnaire included questions assessing participants' socio-demographic information. Some of these questions were used to characterize the sample (see Table 8), and others were used as psychosocial determinants of adherence behaviors (e.g. indicators of SES, questions related with immigrant caregivers' conditions in Portugal). A Multiple Correspondence Analysis (MCA) was used to construct a standardized index for SES. The MCA was performed because educational level, profession and income were categorical variables and a good reliability index was obtained (α = 0.753). A lower score in this index represented lower caregivers' SES and, conversely, a higher score indicated a higher SES.

Beliefs about Medicine Questionnaire (BMQ-Specific). The BMQ-Specific is an eleven-item questionnaire, validated and used in several countries (e.g. Bucks, Hawkins, Skinner, Horn, Seddon & Horne, 2009) to assess patients' beliefs about their personal need for a pharmacological treatment versus their concerns regarding potential adverse effects. In this study we used the Specific-Concerns subscale from Salgado et al., (2013), in order to access caregivers' beliefs about the perceived ineffectiveness or secondary effects of pharmacological treatments recommended by the Portuguese CPC. Caregivers were invited to report their concordance with six statements (e.g. These medicines give unpleasant side effects to my child(ren)), thinking on the pediatric medication recommended by the Portuguese CPC to relieve most common child's symptoms. Answers were rated on a 5-point Likert scale (from 1-strongly disagree to 5-strongly agree).

A CFA was conducted, with the maximum likelihood method, to assess some of the psychometric properties of this scale in our sample. The one-factor model was confirmed, but excluding two items that presented low loading values (i.e. *Worries me that my child(ren) has(have) to take these medicines. Sometimes long-term effects of these medicines worry me*, with standardized weights < 0.4). According to the rule of thumbs from several fit indices, the fit of the data to this one-factor structure was quite good (χ^2 (2) = 2.420, p = 0.298; χ^2/df = 1.21; CFI = 1; TLI = 0.99; RMSEA = 0.04; Hair et al., 2010; Hu & Bentler, 1999; Kline, 2011; Maroco, 2010; Schreiber et al., 2006) and all items loaded significantly on the factor (p < 0.001). The final factor value was calculated by the sum of participants' answers and presented a good internal consistency (α = 0.804; 4 items). The higher the score the higher the concern associated to recommended pharmacological treatments.

The European Task Force on Patient Evaluation of General Practice Care (EUROPEP). The EUROPEP questionnaire is widely used to evaluate the satisfaction of users with primary health care (e.g. Wensing et al., 2000). In this study we have used the subscales of satisfaction with medical and nursing care of the Portuguese version of the EUROPEP (Roque, Veloso & Ferreira, 2016).

First, caregivers were asked to evaluate their children's family doctor or pediatrician, regarding technical care (e.g. *Explanation about medication, treatments, and tests prescribed*) and doctor-patient relationship (e.g. *How did the doctor listened to you*). Afterwards, caregivers were asked to evaluate the health care center or clinic in relation to nursing care (e.g. *Time devoted to you by the nursing staff*). All items were rated on a 5 point Likert scale

(from 1-bad to 5-excellent). Participants were also given the possibility of choosing a "non-applicable" option for each statement.

A CFA supported the two-factor model and all items loaded significantly on the corresponding factor ($p < 0.001$), but only with a modest fit to the data in some fit indices (χ^2 (188) = 522.161, $p < 0.001$; $\chi^2/df = 2.78$; CFI = 0.87; TLI = 0.84; PCFI = 0.71; PNFI = 0.66; RMSEA = 0.12; Hair et al., 2010; Hu & Bentler, 1999; Kline, 2011; Maroco, 2010; Schreiber et al., 2006). The values of each factor were calculated by a weighted sum, excluding the "not applicable" answers. Scores were also converted from a scale ranging from 1 (bad) to 5 (excellent) to a scale ranging from 0% to 100%. The measure presented very good levels of internal consistency: satisfaction with medical care (α = 0.967; 18 items); satisfaction with nursing care (α = 0.857; 3 items). The higher the scores the higher the satisfaction with care.

The Trust in Physician Scale (TPS). The TPS assesses the interpersonal trust in patient-physician relationships (Anderson & Dedrick, 1990) and was validated with a sample of Portuguese type 2 diabetics and their partners (Pereira, Pedras & Machado, 2013). In this study, caregivers reported their concordance with the 11 statements regarding the family doctor/pediatrician that usually followed their child(ren) (e.g. I trust the doctor so much that I always try to follow his/her advice.; I sometimes distrust the doctor's opinion and would like a second one). Answers were rated on a 5-point Likert scale (from 1-strongly disagree to 5-strongly agree).

A CFA was conducted, with the maximum likelihood method, supporting the one-factor model, but excluding three items that presented low loading values (i.e. *I doubt that the doctor really cares about my child as a person.; I feel that the doctor does not do everything he/she should do for my child's medical care.; I sometimes worry that the doctor may not keep the information we discuss totally private.*, with a standardized weight < |0.4|). The fit to the data was very good (χ^2 (20) = 35.401, $p < 0.05$; $\chi^2/df = 1.77$; CFI = 0.96; TLI = 0.95; PCFI = 0.69; PNFI = 0.66; RMSEA = 0.08; Hair et al., 2010; Hu & Bentler, 1999; Kline, 2011; Maroco, 2010; Schreiber et al., 2006) and all items loaded significantly on their corresponding factor ($p < 0.001$). One negative statement was reversed and the final factor value was calculated by the sum of participants' answers, ranging from 8 to 40. The higher the score the higher the trust in the physician. The scale presented a good level of internal consistency (α = 0.874; 8 items).

Cultural Mismatches in Child Care Practices. Based on our previous qualitative research (Mourão & Bernardes, in press) we created three statements with high face validity that assessed cultural mismatches in child care practices (i.e. traditionally used in Brazil versus recommended in the Portuguese CPC services), namely those that were related with feeding practices and methods of symptoms relief.

Caregivers were asked about how similar/dissimilar were their perceptions regarding: the type of food that children eat (i.e. *The food that is recommended in the Portuguese CPC services is similar to the food that children traditionally eat in Brazil.*); the introduction of food in children's diet (i.e. *The order of introduction of food on children's diet that is recommended in the Portuguese well-child visits (e.g. first the meat, then the fish) is the same as the order that usually is followed in Brazil.*); the methods used to relief the most common child's symptoms (i.e. *The measures recommended in the Portuguese well-child visits to relieve common symptoms (e.g. fever, colic, cough) are the same as the measures that are traditionally used in Brazil.*).

For each of the presented statement, caregivers were asked to mark their answer on a 10 centimeters visual analog scale that was only anchored at the extreme lower and higher points (0-not similar at all; 10-completely similar). The exact point of the scale marked by the caregiver was measured in centimeters and corresponded to their perception about a lower or a higher cultural similarity on the assessed children's care practices.

Acculturation Measure: Own and Perceived Acculturation Orientations. To assess caregivers own acculturation orientations the items developed by Zagefka & Brown (2002) and translated to Portuguese by França & Guerra (2015) were used. Parents rated their desire for culture maintenance (e.g. I think it is important that Brazilians in Portugal maintain their own culture) and contact with host society (e.g. I think that it is important that Brazilians in Portugal have Portuguese friends). The perceived host society orientation towards culture maintenance and contact was also measured. Caregivers indicated how much they believed that Portuguese do not mind that Brazilian immigrants maintain their heritage culture (e.g. I believe that Portuguese do not mind that Brazilians maintain their way of living). Caregivers indicated also how much they believed that Portuguese want to maintain contact with Brazilian immigrants (e.g. I believe that Portuguese find it important that Brazilians also spend time with Portuguese people). All items were measured on a 5-point Likert scale (from 1-totally disagree to 5-totally agree).

A CFA was performed to assess some of the psychometric properties of this scale in our sample. As expected, a four-factor model was confirmed, with a good fit to the data (χ^2 (29) = 38.771, p = 0.106; χ^2/df = 1.34; CFI = 0.98; TLI = 0.97; PCFI = 0.63; PNFI = 0.60; RMSEA = 0.05). All items loaded significantly on their corresponding factor ($p < 0.001$; Hair et al., 2010; Hu & Bentler, 1999; Kline, 2011; Maroco, 2010; Schreiber et al., 2006). The values of each factor were calculated by the average of participants' answers to the corresponding items. The measure presented good internal consistency: own preference towards culture maintenance (α = 0.688; 3 items); own preference towards contact (Spearman-Brown coefficient = 0.919; 2 items); perceived outgroup's preference towards culture maintenance (α = 0.897; 3 items); perceived outgroup's preference towards contact (Spearman-Brown coefficient = 0.776; 2 items). The higher the scores the higher the preferences towards culture maintenance/contact.

Statistical analysis

Data were analyzed using the IBM-SPSS Statistics 24.0. First, we examined the association between all model variables using Pearson correlations. Then, the relationships between immigrant caregivers' adherence to CPC recommendations and their socio-demographic characteristics were also tested. Brazilian caregivers who went to public CPC services reported higher non-adherence to paid vaccines, as compared with those who went to private services, p = 0.016, Fisher's Exact Test. Consequently, the CPC service used was coded as a dummy variable (public as a baseline category) and controlled in the analyses that followed.

Finally, considering the results of the correlation analyses, one hierarchical multiple regression model was conducted to test which psychosocial determinants predicted Brazilian caregivers' adherence to a safe psychomotor development. The relevant assumptions of this statistical analysis were met. Also, we conducted a binary logistic regression to investigate the psychosocial predictors of Brazilian caregivers' adherence to paid vaccines, controlling for the effect of the type of CPC service most accessed.

Results

Descriptive statistics

Brazilian caregivers' adherence to a safe psychomotor development ranged from 39.29 to 100.0%, but on average they reported a high perceived adherence to this kind of

recommendations (*M* = 85.50, *SD* = 13.12). Brazilian caregivers' adherence to nutritional counselling ranged from 35.0 to 100.0%, and they also reported a relatively high adherence to this kind of recommendations (*M* = 74.93, *SD* = 16.65). Regarding vaccination, Brazilian caregivers reported an adherence rate of 100% (n = 121) to free vaccines, as such this dimension will not be considered in the results that follow as it showed no variability. Nevertheless, 52.9% of the Brazilian caregivers (n = 64) reported non-adherence to paid vaccines. Detailed descriptive statistics of the hypothesized psychosocial determinants of Brazilian caregivers' adherence to CPC recommendations are presented in Table 9.

Table 9. Descriptive statistics of the psychosocial determinants of Brazilian caregivers' adherence to CPC recommendations

Psychosocial determinants	Descriptive	
Structural level		
SES index	Mean (SD) Minimum-Maximum	-0.05 (1.06) -2.79-2.33
Time in Portugal	< 5 years > 5 years	58 (47.2%) 65 (52.8%)
Legal situation in Portugal	Legalization in process or temporary resident permission Permanent resident permission or Portuguese citizenship	54 (52.4%) 55 (47.6%)
Individual level		
Concerns about pediatric medication	Mean (SD) Minimum-maximum	8.86 (2.89) 4-20
Interpersonal level		
Satisfaction with medical care	Mean (SD) Minimum-maximum	74.02 (23.39) 1.92-100.0%
Satisfaction with nursing care	Mean (SD) Minimum-maximum	76.37 (23.08) 0-100.0%
Trust in physician	Mean (SD) Minimum-maximum	26.98 (5.86) 8-39
Intergroup level		
Cultural similarity on children's type of food	Mean (SD) Minimum-maximum	4.63 (3.04) 0-10
Cultural similarity on children's introduction of food	Mean (SD) Minimum-maximum	4.10 (3.26) 0-10
Cultural similarity on methods used to symptoms relief	Mean (SD) Minimum-maximum	6.06 (3.16) 0-10
Immigrants' preferences towards culture maintenance	Mean (SD) Minimum-maximum	3.53 (0.78) 1.33-5
Immigrants' preferences towards contact	Mean (SD) Minimum-maximum	4.32 (0.72) 2-5
Preferences towards culture maintenance of the Portuguese	Mean (SD) Minimum-maximum	3.15 (0.94) 1-5
Preferences towards contact of the Portuguese	Mean (SD) Minimum-maximum	3.62 (0.89) 1-5

As presented in Table 9, Brazilian caregivers' SES ranged from -2.79 to 2.33 (*M* = -0.05, *SD* = 1.6). Around half of them was in Portugal for more than 5 years (52.8%) and the other half reported having a legalization in process or a temporary resident permission

(50.9%). On average, caregivers reported relatively low concerns regarding recommended pediatric medication to relieve most common child's symptoms (Table 9). They also perceived low cultural similarity in the type of food and the order of introduction of food on children's diet, but moderate cultural similarity on the methods used to relieve most common child's symptoms. Brazilian caregivers presented a relatively high satisfaction both with medical and nursing care, and moderate trust in physicians. Finally, on average, Brazilian caregivers reported moderate preference for Brazilian culture maintenance and high preference for contact with the Portuguese culture. Caregivers also perceived that Portuguese have moderate preference towards Brazilian culture maintenance and towards contact with them (Table 9).

Relationships between Brazilian caregivers' adherence to CPC recommendations and psychosocial determinants

Guided by the model presented in Figure 6, Table 10 presents the correlations between Brazilian caregivers' adherence to CPC recommendations and the psychosocial determinants identified at different levels of analyses.

Table 10. Relationships between Brazilian caregivers' adherence to CPC recommendations and the psychosocial determinants

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Structural level								**Pearson Correlations**									
1. SES	-----																
2. Time in Portugal: < 5 years [a)] > 5 years	-.255**	-----															
3. Legal situation in Portugal: Legalization in process/temporary resident permission [a)] Permanent resident permission/Portuguese citizenship	.149	.516***	-----														
Individual level																	
4. Concerns about pediatric medication	-.140	-.187*	-.259**	-----													
Interpersonal level																	
5. Satisfaction: medical care	.117	.320***	.324**	-.156	-----												
6. Satisfaction: nursing care	-.019	.148	.116	-.168	.567***	-----											
7. Trust in physician	.077	.214*	.271**	-.241**	.729***	.364***	-----										
Intergroup level																	
8. Cultural similarity on children's feeding: type of food	-.028	-.131	-.147	-.053	.154	.120	.225*	-----									
9. Cultural similarity on children's feeding: introduction of food	.048	-.199*	-.228*	.066	.045	-.081	.171	.419***	-----								
10. Cultural similarity on methods to symptoms relief	.042	-.031	.032	-.062	.074	-.040	.182*	.436***	.319**	-----							
11. Immigrants' preferences: culture maintenance	-.092	-.066	-.049	.006	-.112	.037	-.035	.015	.066	-.163	-----						
12. Immigrants' preferences: contact	.230*	-.138	-.057	-.106	-.023	.010	.086	-.057	-.074	.003	.196*	-----					
13. Portuguese perceived preferences: culture maintenance	-.023	-.063	-.020	.142	-.007	.153	.167	.118	.197*	.046	.253**	.048	-----				
14. Portuguese perceived preferences: contact	.050	.000	.068	-.180*	.066	.168	.210*	.106	.068	.096	.070	.312***	.305**	-----			
Adherence																	
15. Safe psychomotor development	.343**	-.221*	.125	-.349***	.118	.137	.078	-.047	-.159	.101	-.045	.136	-.063	.202*	-----		
16. Nutritional counselling	.054	.101	.182	-.146	-.065	-.177	.160	-.210*	-.039	.031	-.091	-.009	.041	.169	.205	-----	
17. Paid vaccines: No [a)] Yes	.200*	.227*	.352***	-.099	.165	.156	.094	.026	-.003	.013	-.048	-.055	-.028	.096	.078	-.003	-----

Note. *p <= 0.05 ** p < 0.01 *** p < 0.001

[a)] The dichotomous variables were coded as dummy variables; the marked category represents the baseline.

At a structural level, Brazilian caregivers of higher SES and those who more recently arrived to Portugal reported higher adherence to a safe psychomotor development (Table 10). At an individual level, Brazilian caregivers who reported lower concerns about pediatric medication were those who reported higher adherence to a safe psychomotor development. From an intergroup perspective, Brazilian caregivers who perceived a higher Portuguese preference for contact with them were those who reported a higher adherence to a safe psychomotor development. As presented in Table 10, no correlations were found between Brazilian caregivers' adherence to a safe psychomotor development and the psychosocial determinants identified at interpersonal level.

As indicated in Table 10, Brazilian caregivers who reported higher adherence to nutritional counselling were those who perceived a lower cultural similarity in children's type of food (recommended in the Portuguese CPC services versus traditionally eaten in Brazil). No additional correlations were found between Brazilian caregivers' adherence to nutritional counselling and other psychosocial determinants.

Finally, Brazilian caregivers who reported higher SES, who were in Portugal for a longer time and had a permanent resident permission or Portuguese citizenship reported higher adherence to paid vaccines. Once again, no additional correlations were found between Brazilian caregivers' adherence to paid vaccines and the remaining psychosocial determinants (Table 10).

Predictors of Brazilian caregivers' adherence to CPC recommendations

Considering the results above, Tables 11 and 12 detail the results of the hierarchical regression analysis.

Table 11. Regression analysis for psychosocial determinants predicting Brazilian caregivers' adherence to a safe psychomotor development

Variables		β
Step 1 (structural level)		
SES		0.312**
Time in Portugal		-0.162
	$R^2_{adjusted}$	0.125
	F(2,96)	8.006**
Step 2 (individual level)		
SES		0.220*
Time in Portugal		-0.225*
Concerns about pediatric medication		-0.327**
	$R^2_{adjusted}$	0.215
	ΔR^2	0.095
	$\Delta F(1,95)$	12.039**
Step 3 (intergroup level)		
SES		0.216*
Time in Portugal		-0.207*
Concerns about pediatric medication		-0.312**
Portuguese perceived preferences' towards contact		0.123
	$R^2_{adjusted}$	0.222
	ΔR^2	0.015
	$\Delta F(1,94)$	1.830 (n.s.)

Note. *$p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Results in Table 11 show that, at a structural level, only Brazilian caregivers' SES contributed significantly to the regression model and accounted for 12.5% of the variation in their adherence to a safe psychomotor development; that is when controlling for the effects of their time in Portugal ($\beta = -0.162$, $p = 0.095$). Entering a psychosocial determinant at the individual level (i.e. concerns about pediatric medication) accounted for an additional 9.5% of variance in Brazilian caregivers' adherence to a safe psychomotor development and all the variables (SES, time in Portugal and concerns about pediatric medication) show a significant effect. Finally, the inclusion of an intergroup psychosocial determinant (i.e. Portuguese perceived preferences towards contact) did not significantly improve the model's prediction (F (1, 94) = 1.830, $p = 0.179$). Thus, the best fitting model for predicting Brazilian caregivers' adherence to a safe psychomotor development is a linear combination of the following psychosocial determinants: SES ($\beta = 0.220$, $p < 0.05$), time in Portugal ($\beta = -0.225$, $p < 0.05$) and concerns about pediatric medication ($\beta = -0.327$, $p < 0.001$), $R^2_{adjusted} = 0.215$, $F(1, 95) = 12.093$, $p < 0.01$. The psychosocial determinant with higher predictive value is related to

caregivers' concerns about pediatric medication, followed by their time in Portugal and by their SES.

Table 12. Logistic regression analysis for psychosocial determinants of Brazilian caregivers' adherence to paid vaccines

Variables	Exp(B)
Step 1	
CPC service most accessed (private)	3.231*
R^2_{CS}	0.065
R^2_N	0.086
$\chi 2$ (1)	6.342*
Step 2	
CPC service most accessed (private)	2.497
SES	1.354
Time in Portugal (>5 years)	1.425
Legal situation in Portugal (permanent resident permission or Portuguese citizenship)	4.333*
R^2_{CS}	0.210
R^2_N	0.281
$\chi 2_{model}$ (4)	22.447***

Note. $^{*}p < 0.05$ $^{**}p < 0.01$ $^{***}p < 0.001$

The logistic regression model presented in Table 12 revealed that only immigrant caregivers' legal situation in Portugal predicted their adherence to paid vaccines (*Wald* (1) = 6.656, $p < 0.05$), even when controlling for the effects of CPC services used(*Wald* (1) = 2.861, $p = 0.091$) and of the other psychosocial determinants at the structural level (i.e. SES, *Wald* (1) = 1.337, $p = 0.247$, and time in Portugal, *Wald* (1) = 0.334, $p = 0.563$). Thus, at a structural level, only being in Portugal with a permanent resident permission or with a Portuguese citizenship increased in 4.33 immigrant caregivers' probability of adhering to recommended paid vaccines, $R^2_{CS} = 0.210$, $R^2_N = 0.281$, $\chi 2$ (4) = 22.447, $p < 0.001$.

Discussion

This study aimed to identify psychosocial predictors of immigrant caregivers' adherence to CPC recommendations, by testing the relationships hypothesized in the multilayered theoretical model presented in Figure 6. In addition, this study also allowed to describe Brazilian immigrant caregivers' adherence to different CPC health recommendations.

Although participants' answers could, to some extent, be influenced by social desirability, our main results indicated that Brazilian caregivers' reported high adherence to several CPC recommendations, especially those that were related with a safe psychomotor development, but also those associated with nutritional counselling. These findings are in line with our previous research, where immigrant (and non-immigrant) caregivers reported a relatively high perceived adherence to recommendations for a safe psychomotor development and to nutritional counselling (Mourão, Bernardes & Carvalho, submitted; please see Chapter 4). Indeed, and despite some previous evidences characterizing immigrants as a vulnerable group to non-adherence (Heerman, et al. 2016; Kirkpatrick et al., 2012; Mourão & Bernardes, 2014), it is expectable that most caregivers would recognize the relevance of CPC recommendations for their child's well-being, hence, reporting high adherence behaviors.

In the case of vaccination, Brazilian caregivers reported an adherence rate of 100% to free vaccines. Again, this conclusion coincides with data from our previous research and from some national health indicators, which point out to a high children's vaccination coverage rate, namely in the vaccines that are supported by the national health system (Mourão, Bernardes & Carvalho, submitted; please see Chapter 4; Instituto Nacional de Estatística/National Statistic Institute [INE], 2017). Nevertheless, about half of the Brazilian caregivers reported non-adherence to paid vaccines (i.e. not supported by the national health system), a relatively lower coverage rate when compared with a sample of Portuguese non-immigrant caregivers from our previous work (Mourão, Bernardes & Carvalho, submitted; please see Chapter 4). This conclusion reinforces the initial assumption that immigrant caregivers should be considered as a vulnerable group regarding adherence to some preventive health recommendations and so the identification of psychosocial predictors of their non-adherence behaviors at this level is of utmost relevance.

As for the psychosocial predictors of Brazilian caregivers' adherence to CPC recommendations, our results pointed out that the hypothesized psychosocial determinants at the structural level assume particular relevance in predicting adherence to a safe psychomotor development and paid vaccines, even when controlling for the effects of other important predictors such as their concerns about pediatric medication. As expected, Brazilian caregivers with higher SES revealed higher adherence to a safe psychomotor development and paid vaccines, supporting our H1. Although these health recommendations have a specific preventive focus, our results are in line with previous evidence showing that immigrants' financial barriers to accessing material resources (e.g. treatments or diet restrictions imposed

by certain treatments; Mourão & Bernardes, 2014) may contribute to their non-adherence behaviors. In our particular case, the financial barriers associated to a lower SES may prevent Brazilian immigrants to adhere to certain recommendations that involve buying commodities such as vaccines not covered by the national vaccination plan, a car seat suitable for children's age/size or devices to protect the electrical plugs.

Nevertheless, it should be noted that the majority of CPC recommendations for a safe psychomotor development do not necessarily imply an increase in family expenses (e.g. encourage the child to play, to walk or to speak correctly). Therefore, the fact that caregivers' lower SES also hampered their adherence to such recommendations may be accounted for by the level of education component included in the SES indicator. Indeed, this dimension of SES is usually associated to individuals' knowledge and ability to access the health services and/or to get knowledge about health topics (Matthews & Gallo, 2011). In this case, lower education levels may eventually influence the relevance caregivers' attribute to CPC recommendations for their children's safe psychomotor development. This assumption lines up with the main conclusions of our previous work, which suggested that lower SES caregivers (Portuguese or immigrants) held a social representation of CPC mainly focused on monitoring children's physical development and promoting a healthy diet, neglecting the CPC function of promoting children's safe psychomotor development (e.g. anticipatory guidance related with the prevention of childhood accidents; Mourão & Bernardes, submitted; please see Chapter 3).

Also as expected, Brazilian caregivers who had a permanent resident permission or a European/Portuguese citizenship were those who reported higher adherence to paid vaccines, supporting our H2. These results are in line with previous evidences showing that immigrants' social conditions in the host country can influence their adherence behaviors (Gimeno-Feliu et al., 2009). Again, the preventive recommendations related with the paid vaccines ended up assuming a status similar to the "prescribed medication", where immigrant caregivers who did not have a similar legal status to the Portuguese caregivers were in a more vulnerable condition to non-adherence. This assumption is particularly relevant since our results showed that only this psychosocial determinant ended up predicting Brazilian caregivers' adherence to paid vaccines, even when controlling for the effect of SES and time in Portugal. Perhaps, in the particular case of immigrants, the indicator that better characterizes their position in the social hierarchy is their legal status in the host country and not so much their education,

occupation or income, usually used to capture individuals' economic and prestige-based component of SES in the global population (Matthews & Gallo, 2011).

Surprisingly, Brazilian caregivers who reported higher adherence to a safe psychomotor development were those who reported being in Portugal for less time, thus not supporting our H2 that predicted the opposite. This result shows that, although being in the host country for less time may constitute an important barrier to immigrants' access to health services and/or quality care (Dias et al., 2018; Wafula & Snipes, 2014), it was not necessarily associated with their lower adherence to CPC health recommendations. In this case, immigrant caregivers' adherence behaviors might have been influenced by their desire to adopt some of the health practices of the host society. Thus, Brazilian caregivers who were in Portugal for less time, in an effort of cultural integration, may have a higher desire to adopt Portuguese CPC health recommendations, hence, reporting higher adherence

At an individual level, Brazilian caregivers who reported higher adherence to a safe psychomotor development were those who reported lower concerns about pediatric medication, even when controlling for the effects of other important predictors regarding social conditions in the host country (SES and time in Portugal). This result supports our H3. Although recommendations to a safe psychomotor development have, as discussed, a particular preventive focus and are not strictly about pharmacological methods, this result also goes in line with previous evidences showing that immigrants' therapeutic non-adherence is often influenced by their health beliefs (Hakonsen & Toverud, 2011).

At an interpersonal level, neither satisfaction with care nor trust in physician predicted Brazilian caregivers' adherence to CPC recommendations. Thus, these findings did not support our H4 and H5, which hypothesized that higher levels of satisfaction or trust in care would be associated to higher adherence to CPC recommendations. Surprisingly, this result contrasts with the few evidences showing positive associations between immigrants' therapeutic adherence and their satisfaction or trust in care (Taylor et al., 2016; Tucker et al., 2011). Perhaps, in the specific context of immigrants' adherence to CPC preventive health recommendations, these psychosocial determinants are not the most adequate indicators of the complex interpersonal relationships established with health professionals. Probably, if we had used more specific measures tapping into patient-centered culturally sensitive health care approaches (e.g. perceived cultural sensitivity) we would have a different pattern of results, as these would show a more proximal predictive role on immigrants' adherence behaviors (Tucker et al., 2007; Tucker et al., 2011).

In some way, the previous discussion reinforces the relevance of also considering the intergroup level of determinants of immigrants' adherence to CPC recommendations. Indeed, Brazilian caregivers' adherence to nutritional counselling was associated with cultural mismatches on children's care practices, namely their perceptions about similarities in the type of food that is recommended in the Portuguese CPC services and the food that is traditionally eaten in Brazil. Surprisingly, however, caregivers who identified more similarities in this domain were those who reported less adherence to nutritional counselling, thus not supporting our H6. Our hypothesis (H6) was based on the assumption that Brazilian caregivers' had positive beliefs/attitudes towards their traditional feeding practices (Mourão & Bernardes, in press; please see Chapter 2) and, thus, perceived similarities between their practices and Portuguese nutritional counselling (i.e. less cultural mismatches) would contribute to higher adherence. Nevertheless, some Brazilian caregivers could have negative beliefs/attitudes towards their traditional feeding practices and so, perceiving higher similarities between these practices and the Portuguese nutritional counselling would be associated to lower adherence. Accordingly, immigrant caregivers' beliefs/attitudes towards their traditional child care practices, which were not measured, could eventually moderate the relationship between perceived cultural mismatches in child care practices and their adherence to CPC recommendations. This contention, however, is yet to be tested.

The discussion above reinforces our initial contention that immigrants' acculturation orientations, and especially their preferences for maintaining or not certain health practices of their origin culture (e.g. child feeding practices), may have also influenced their adherence behaviors. Nevertheless, we have not found consistent results on the relationship between Brazilian caregivers' acculturation orientations and their adherence to CPC recommendations. Perhaps, the specificity of the adherence behaviors requires the use of an acculturation measure more adapted to the specific health context, as will be discussed below. Even so, Brazilian caregivers' higher perceptions about Portuguese preferences towards contact were associated with their higher adherence to a safe psychomotor development. This innovative result supports the potential relevance of acculturation approaches to studying immigrants' adherence behaviors, going beyond the use of *proxy measures* or unidimensional views of acculturation (Schwartz & Unger, 2017; Thomson & Hoffman-Goetz, 2009).

Limitations and implications for future research

Some limitations should be pointed out to this study, which are in turn related to future directions for research. First, and as discussed above, some of the participants' answers could have been influenced by social desirability, especially considering that caregivers' non-adherence to some CPC recommendations could be perceived as an indicator of parental negligence (e.g. not preventing childhood accidents). To minimize this effect we tried to reduce as much as possible the presence of researchers in the data collection procedures, by asking each participant to individually fill out the CPC-Adherence Scale, preferentially via an electronic protocol. In the cases where the protocol was collected in a paper format, protocols were delivered in sealed and non-identified envelopes. Despite the principal researchers were non-immigrant Portuguese and, hence, members of the majority group, a Brazilian immigrant in Portugal has collaborated in the data collection process, which may have also contributed to minimize social desirability effects.

Second, the innovative character of the tested model brought along some barriers in the operationalization of certain psychosocial determinants of immigrant caregivers' adherence to CPC recommendations. As discussed above, the quality of interpersonal relationships and communication processes with health professionals was assessed by general measures that do not specifically consider health professionals' multicultural competencies/sensitivity. This limitation may have to some extent accounted for the absence of results at the interpersonal level. Moreover, we have used a general measure of acculturation that does not focus on more specific domains such as health/adherence behaviors (e.g. preference to maintain or not child care practices of their origin countries). The mismatch between the level of specificity of the acculturation and adherence measures may have accounted for the null/weak associations that were found. Thus, an acculturation measure more specific to the health/CPC context is needed, especially considering some evidences that show that immigrants' acculturation orientations may vary according to different life domains (Arends-Toth & van de Vijver, 2003; Navas, García, Sánchez, Rojas, Pumares & Fernández, 2005; Phalet, Lotringen & Entzinger, 2000). Considering the specificity of some of the psychosocial determinants identified in our previous qualitative research (e.g. cultural mismatches in the child care practices), we also developed by our own indicators to assesses these determinants that, despite their high face validity, required further validation.

Also because of the innovative character of the study, we have only tested direct relationships between the proposed psychosocial determinants and immigrant caregivers' adherence to CPC recommendations. Nevertheless, the discussion above also points to the advantages of considering more complex psychosocial processes to better predict immigrants' adherence to CPC recommendations. For example, immigrant caregivers' representations about CPC activities may mediate the relationship between their SES and adherence behaviors. Also, immigrant caregivers' beliefs/attitudes towards their traditional child care practices may moderate the relationship between perceived cultural mismatches in child care practices and their adherence to CPC recommendations. Thus, these hypothesized relationships should be further explored.

Finally, some limitations regarding sampling and design should also be highlighted. As in our previous work, most caregivers who accepted to participate in the study were mothers, although this was not a specific inclusion criteria (please see Chapters 2 and 4). Once again, and even though this is not entirely surprising, as mothers are more often recognized as the main caregivers and users of services (e.g. Andrade, 2008), this ends up limiting our knowledge about the adherence behaviors of other types of caregivers, namely fathers and grandparents. Thus, a more systematic inclusion of their perspectives should therefore be a topic of concern to further research. Besides this, and because they are the most prominent immigrant group in the country (SEF, 2016), our sample was specifically constituted by Brazilian immigrants in Portugal. Accordingly, the present results may not be generalized to other immigrant groups. Also, considering this study's exploratory nature, we are drawing conclusions about the predictive value of certain psychosocial determinants based upon cross-sectional data. Nevertheless, future research should seek to collect longitudinal data on this subject in order to establish more concrete causal relationships.

Despite the abovementioned limitations, this study has relevant theoretical and practical implications. From a theoretically point of view, this study identifies the predictive role of certain psychosocial determinants on immigrant caregivers' adherence to CPC recommendations, which is an empirical contribution to the literature on immigrants' therapeutic adherence, in general, and in what concerns preventive health recommendations, in particular. This study is also a theoretical contribution to the integration between certain predictions of socio-cognitive models, widely used by health psychologists to predict individuals' adherence behaviors, and socio-psychological theories that conceptualize social and cultural dimensions of immigrants' non-intentional adherence.

From a practical point of view, the identification of psychosocial determinants that are particularly relevant to immigrant caregivers' adherence behaviors is essential to the development of knowledge-based interventions that aim to promote immigrants' adherence behaviors. This is particularly relevant as immigrant families may be more vulnerable to non-adherence (Colby et al., 2012; Griva et al., 2013), beyond their difficulties in accessing/using the primary care services (Ahmed et al., 2016; Dias et al., 2018). Our results may also contribute to increasing the multicultural sensitivity and competency of CPC health professionals. Health professionals' awareness of such psychosocial determinants of immigrants' adherence behaviors may prove to be relevant, especially considering that some of the identified determinants are potentially modifiable (e.g. concerns about pediatric medication).

6. GENERAL DISCUSSION

Revisiting the thesis' principal aims and findings

Immigrant caregivers' adherence to CPC recommendations assumes particular relevance in the early detection or reduction of some of the health-related problems traditionally with higher prevalence among immigrant (and low income) children (e.g. obesity, asthma, dental problems and mental illnesses; van Esso et al., 2010). Thus, this thesis was motivated by the need to better predict immigrant caregivers' adherence behaviors, within the specific context of CPC services.

Most literature on immigrants' health-related vulnerabilities has been mainly focused on the determinants of their access to health services (Dias et al. 2008, 2018; Oliveira & Gomes, 2018; Wafula & Snipes, 2014; Kalich et al., 2016). Less is known about the determinants of immigrants' adherence, in general, and especially in what concerns adherence to preventive CPC health recommendations. Accordingly, we aimed to contribute to bridge this gap by furthering the understanding about immigrant caregivers' adherence to CPC health recommendations. Considering this general purpose, three main aims were outlined for this thesis. The central and **first aim of this thesis** was to investigate and identify the main psychosocial determinants of immigrant caregivers' adherence to CPC health recommendations. The **second aim of the thesis** was corollary to the first aim, as we sought to achieve the latter by using a triangulation of qualitative and quantitative methodologies, and there was an absence of measures of adherence to CPC health recommendations. Thus, the second aim of this thesis was to operationalize the specific concept of adherence to CPC health recommendations by developing and validating a self-report measure. Finally, and considering that caregivers' representations about CPC may influence their adherence behaviors, the **third aim of the thesis** was to investigate immigrant caregivers' social representations about Portuguese CPC services and their activities, drawing upon the Theory of Social Representations (Flick, 2000; Joffe 2002 [a)]; Joffe, 2002 [b)]).

Four different studies were conducted to achieve the three main aims. Thus, the main results of these studies will be integrated and discussed in the following three subchapters, which are respectively related with each aim of this thesis. The first subchapter starts with an integrative analysis of the main findings on the conceptualization and measurement of the specific concept of adherence to CPC health recommendations. This subchapter is mainly associated with to second aim of this thesis. Afterwards, a subchapter mostly related with the first and principal aim of this thesis is presented. In this case, will be discussed the main findings about the psychosocial determinants of immigrant caregivers' adherence to CPC

recommendations. These psychosocial determinants were particularly identified in relation to immigrant caregivers from Cape Verde (**Study 1**; **Chapter 2**) and especially from Brazil (**Studies 1 and 4**; **Chapters 2 and 5**, respectively), as these are the most representative groups of immigrants in Portugal (SEF, 2016). Next, and already highlighting some cues for further research, the third subchapter will discuss the findings on caregivers' representations about CPC, mainly associated with the third aim of this thesis. Finally, after these subsections, a discussion of the main limitations of this thesis and its contributions for further research and practice is presented.

Conceptualization and measurement of caregivers' adherence to CPC recommendations

According to caregivers' perceptions in **Study 1** (**Chapter 2**), the concept of adherence to CPC recommendations may include adherence to some pharmacological recommendations (e.g. medication to relieve common child's symptoms), but it mostly involves adherence to recommendations regarding preventive health behaviors or lifestyle practices (e.g. nutritional counselling).These results are in line with broader conceptualizations of therapeutic adherence, by depicting the specific concept of adherence to CPC recommendations as complex and multidimensional (Dunbar-Jacob et al., 2012; Straub, 2012; Brannon et al., 2014). Such caregivers' perceptions coincide to some extent with technical information on CPC activities, which also identifies several domains of CPC health recommendations, namely immunization schedules, nutrition and prevention or symptom relief (DGS, 2013; van Esso et al., 2010; Kuo et al., 2012). Nevertheless, this technical information also highlights other health recommendations that were not part of the concept of adherence that emerged from the data in **Study 1** (**Chapter 2**), namely those related with developmental surveillance and prevention of childhood injuries (DGS, 2013; van Esso et al., 2010; Kuo et al., 2012). This conclusion indicates that caregivers either did not recognize these domains of recommendations as relevant and/or that health professionals are not explicitly and consistently recommending them.

Despite the large diversity of CPC recommendations, the results from **Study 3** (**Chapter 4**) concluded that caregivers' adherence to CPC recommendations could be conceptualized and measured in two main dimensions. A broader dimension, focusing on their adherence to recommendations that promote a healthy psychomotor development (e.g. play, speak, walk) and that prevent the most common child accidents/injuries, which may occur during some of these activities (e.g. suffocation, burns). As such this dimension was

linked with one of the principal objectives of well-child visits, namely monitoring children's psychomotor development (DGS, 2013), it was conceptualized as "Adherence to a safe psychomotor development". The second and more specific dimension was essentially focused on caregivers' adherence to recommendations related with the introduction of food on children's diet and so it was conceptualized as "Adherence to nutritional counselling". This dimension was linked with the other principal objective of well-child visits (i.e. monitoring children's physical development, DGS, 2013), especially because it encompasses the recommendations often transmitted to caregivers when their child's physical development is being assessed (e.g. weight, height). Caregivers' adherence to what was firstly defined as health recommendations for symptom prevention or relief (e.g. fever, cough; **Study 1**; **Chapter 2**) was mostly integrated in the dimension of "Adherence to a safe psychomotor development", considering its main focus on safety promotion.

Results from **Study 3** (**Chapter 4**), but also from **Study 4** (**Chapter 5**), indicated that the two main dimensions of caregivers' adherence to CPC recommendations were interrelated. On one hand, this was not surprising as these dimension reflect the two main aims of well-child visits. On the other hand, this finding showed that several of the nutritional recommendations may also bear a safety focus (e.g. the early detection of diet intolerances or allergies) and/or contribute to the development of certain psychomotor skills (e.g. use of cutlery when children start sharing the meals with the family). These two dimensions, accompanied by questions that assess caregivers' adherence to recommended vaccination, allowed to operationalize and measure the specific concept of caregivers' adherence to CPC recommendations, achieving the second aim of this thesis. Thus, results from **Study 3** (**Chapter 4**) were mainly focused on the development and validation of a measure that assessed caregivers' adherence to CPC health recommendations, essentially related with babies and toddlers – the CPC-Adherence Scale. In this case, the broader dimension of "Adherence to a safe psychomotor development" was represented by 14 specific items and the dimension of "Adherence to nutritional counselling" was constituted by 6 other items. According to the results from **Study 3**, and also from **Study 4** (**Chapter 5**), both of these dimensions presented quite positive levels of internal consistency. They were supplemented by two specific questions about caregivers' adherence to free vaccines that are included in the National Vaccination Program and about their adherence to paid vaccines that are not included in this program.

Overall, the CPC-Adherence Scale presented good content and criterion-related validity. It discriminated the levels of adherence of caregivers with different levels of knowledge about CPC recommendations and satisfaction with care. Besides this, and as it was our initial contention, it demonstrated to be sensitive to the specificities of caregivers in more vulnerable conditions, i.e. discriminated levels of adherence from caregivers with different socio-economic and immigrant status. Thus, the CPC-Adherence Scale emerged as an innovative and promising measure to specifically assess caregivers' adherence to CPC recommendations regarding babies and toddlers. This contribution is particularly relevant considering that the majority of the available measures are mainly focused on pharmacological treatment adherence instead of adherence to preventive health recommendations (Lam & Fresco, 2015; Nguyen et al., 2014). Accordingly, the CPC-Adherence Scale may be used to describe immigrant and non-immigrant caregivers' adherence to different CPC health recommendations and so contribute to improve the knowledge about relevant health behaviors that are not usually assessed.

Considering the main results from **Studies 3 and 4** (**Chapters 4 and 5**, respectively), we have concluded that, overall, caregivers (Portuguese and immigrants) reported a relatively high perceived adherence to recommendations for a safe psychomotor development and to nutritional counselling. This conclusion could be in some way associated with the subjective character from the CPC-Adherence Scale, which may condition a higher susceptibility to social desirability than the use of an objective measure (Byrne, 2013; Riekert, 2006). Nevertheless, the preventive focus of the CPC recommendations is not consistent with the use of objective measures that traditionally assess pharmacological adherence behaviors (e.g. counting of medication, Byrne, 2013; McNicholas, 2012; Riekert, 2006). Even so, it is acceptable that the majority of caregivers recognize the relevance of CPC recommendations and so reported a high adherence to them. Similarly, immigrant and non-immigrant caregivers reported an adherence rate to free vaccines near 100%, which coincides with the national health indicators that show a high children's vaccination coverage rate, namely of the vaccines that are supported by the national health system (INE, 2017). Nevertheless, this adherence rate was not replicated in the case of vaccines not supported by the national health system. The results from **Study 3** (**Chapter 4**) indicated an adherence rate to paid vaccines close to 90% in the subsample of Portuguese caregivers and close to 80% in the subsample of immigrant caregivers. Brazilian caregivers' adherence to paid vaccines was only around 50% (**Study 4**; **Chapter 5**).

This last conclusion reinforces the initial assumption that immigrant caregivers should be considered as a vulnerable group regarding non-adherence to certain preventive health recommendations. Indeed, the main findings from **Study 3** (**Chapter 4**) showed that immigrant caregivers also reported lower adherence to paid vaccines and to nutritional counselling, when compared with the Portuguese caregivers. These findings support the relevance of the main aim of this thesis focused on identifying which psychosocial determinants may influence the immigrant caregivers' non-adherence to CPC recommendations. The development and validation of the CPC-Adherence Scale is a vital means to this end, as it can be used in protocols of data collection aiming to identify caregivers' perceived barriers to their non-adherence (Byrne, 2013; Bosworth et al., 2006; Levensky & O' Donohue, 2006), as we have shown in **Study 4** (**Chapter 5**). The main conclusions regarding the psychosocial determinants of immigrant caregivers' adherence to CPC recommendations are detailed in the following section.

Psychosocial determinants of immigrant caregivers' adherence to CPC recommendations

The integration of the main findings of **Studies 1 and 4** (**Chapters 2 and 5**, respectively) allowed to identify which psychosocial determinants may better predict immigrant caregivers' adherence to CPC recommendations. Based on these findings, it was also proposed that these psychosocial determinants could be identified at different, but interrelated levels of analysis, such as: structural level (i.e. related with immigrant caregivers' socio-demographic conditions); individual level (i.e. related with immigrants' health beliefs); interpersonal level (i.e. associated with immigrants' interpersonal relationships with health professionals); intergroup level (i.e. related with cultural (mis)matches in health-related beliefs and acculturation orientations). Thus, and based on a triangulation of methodologies, our findings showed the extent to which several psychosocial determinants, at different levels of analysis, were particularly associated with Cape Verdean and, especially, Brazilian caregivers' adherence to the CPC health recommendations.

At a structural level, and according to the main results of **Study 1** (**Chapter 2**), the lower socio-economic status (SES) of Cape Verdean/Brazilian (and Portuguese) caregivers was identified as a shared barrier to their adherence, namely in what concerns nutritional recommendations and paid vaccines. This conclusion is particularly relevant since minority ethnic groups often present lower socio-economic conditions (Morrison & Bennet, 2009; Straub, 2012). Indeed, the association between SES and adherence behaviors was again

confirmed in relation to Brazilian caregivers in **Study 4** (**Chapter 5**). In this case, we concluded that their higher SES was related with their higher adherence to paid vaccines, but also to recommendations for a safe psychomotor development. On one hand, some of these CPC preventive recommendations may have the same status of prescribed medication/restrictive diets, where their high costs may contribute to lower adherence, as have been previously identified by other research (Mourão & Bernardes, 2014). On the other hand, and by assuming that the majority of CPC recommendations for a safe psychomotor development do not necessarily imply an increase in family expenses (e.g. encourage the child to play, to walk or to speak correctly), a different mechanism may also account for the association between Brazilian caregivers' SES and their adherence behaviors. In this case, it is the caregivers' level of education that may eventually influence the relevance attributed to CPC recommendations for their children's safe psychomotor development, especially considering that this component of the SES indicator is usually associated to individuals' knowledge and ability to access the health services and/or to get knowledge about health topics (Matthews & Gallo, 2011). Indeed, caregivers' knowledge or common sense representations about CPC (discussed below), may contribute to this pattern of findings, as we have concluded in the **Study 2** (**Chapter 3**); caregivers with a lower SES (Portuguese or immigrants) tended to neglect the CPC activities more associated with the promotion of children's psychomotor development (e.g. anticipatory guidance related with the prevention of childhood accidents).

Also at a structural level, and although this was not particularly emphasized by the qualitative results of **Study 1** (**Chapter 2**), the main findings of **Study 4** (**Chapter 5**) highlighted that Brazilian caregivers' legal situation in the host country was particularly relevant to understand their adherence to paid vaccines. In line with what has been previously identified by research on pharmacological treatment adherence (Gimeno-Feliu et al., 2009), Brazilian caregivers with a similar legal status to the Portuguese (i.e. with a Portuguese nationality or a permanent resident permission) were more prone to adhere to this preventive recommendation; even when controlling for the effects of other structural predictors (i.e. SES and time in Portugal). This suggests that immigrant caregivers' legal situation in the host country may be an important indicator of their economic and social position, contributing therefore to explain their adherence behaviors beyond other SES indicators (e.g. level of education, profession, income); commonly used to account for such behaviors of the general population (Matthews & Gallo, 2011).

At an individual level, and based on the main findings of **Study 1** (**Chapter 2**), Cape Verdean caregivers' unfavorable beliefs about CPC pharmacological recommendations were identified as a specific barrier to their non-adherence. This conclusion was also confirmed by the main results from **Study 4** (**Chapter 5**), where Brazilian caregivers' concerns about pediatric medication, usually recommended in CPC services to relieve the most common child's symptoms, were also negatively associated with their adherence to recommendations for a safe psychomotor development. Despite these recommendations not being strictly about pharmacological methods, this conclusion supported previous evidences that certain immigrants' health beliefs may influence their adherence behaviors (Hakonsen & Toverud, 2011). These findings were also in line with previous research showing relevant associations between beliefs about medicine necessity or concerns about its use and the adherence behaviors (Holmes et al., 2014).

Facing the main findings of **Study 1** (**Chapter 2**), we also concluded that most of the specific determinants of Cape Verdean/Brazilian caregivers' adherence to CPC recommendations were associated with their relationships with health services or health professionals (e.g. perceived quality of care). Accordingly, it was expected that, at an interpersonal level, caregivers' satisfaction or trust in care would influence their adherence to CPC recommendations, especially because these two dimensions are often used as indicators of the quality of communicative processes and interpersonal relationships with health professionals (Ha et al., 2010; Hall & Rotter, 2011; Zolnierek & DiMatteo, 2009). Indeed, the main findings of **Study 3** (**Chapter 4**) indicated a positive association between caregivers' satisfaction both with medical and nursing care and their adherence to nutritional counselling and paid vaccines. Also, caregivers' satisfaction with medical care was positively associated with their adherence to a safe psychomotor development. Nevertheless, the main results of **Study 4** (**Chapter 5**) did not support this contention for Brazilian caregivers, also contradicting the few evidence that supports the positive associations between immigrants' satisfaction or trust in care and some of their adherence behaviors (Taylor et al., 2016; Tucker et al., 2011). Although this was not evident in the qualitative findings of **Study 1** (**Chapter 2**), perhaps the satisfaction and trust in care were not the most adequate indicators of the complex interpersonal relationships established between the immigrant caregivers' and the CPC health professionals. In this case, a different pattern of results could have been found if we used more specific measures tapping into patient-centered culturally sensitive health care

approaches (e.g. perceived culturally sensitivity), which may have a more proximal predictive role on immigrants' adherence behaviors (Tucker et al., 2007; Tucker et al., 2011).

Afterwards, some specific determinants of Cape Verdean/Brazilian caregivers' adherence to CPC recommendations that were associated in **the Study 1** (**Chapter 2**) with their relationships with health services or health professionals (i.e. cultural (mis)matches in child care practices) were also framed in an intergroup perspective. In this case, it was recognized that in the interpersonal relationships and communication processes in health-care settings latent cultural dimensions are present, which may influence immigrants' adherence behaviors (Gurung, 2006; Rodríguez-Gómez & Salas-Serrano, 2006). Accordingly, at an intergroup level, it was expected that the perceived cultural mismatches in some child care practices could influence immigrants' adherence to CPC recommendations. Although main results from **Study 4** (**Chapter 5**) confirmed an association between the perceived cultural similarities in the type of food traditionally eaten in Brazil versus recommended in the Portuguese CPC services and Brazilian caregivers' adherence to nutritional counselling, this relationship was not in the expected direction. Indeed, Brazilian caregivers who perceived higher cultural similarities were those who reported lower (and not higher) adherence, which contradicted evidences from **Study 1** (**Chapter 2**). The inconsistency of these findings may be accounted for by the fact that in **Study 1** (**Chapter 2**) the Cape Verdean/Brazilian caregivers tended to report positive beliefs/attitudes towards the traditional practices when compared with the Portuguese CPC recommendations, which may not necessarily be the case of the Brazilian caregivers who participated in **Study 4** (**Chapter 5**). Accordingly, Brazilian caregivers' beliefs/attitudes towards their traditional child care practices, which were not measured, could moderate the relationship between the perceived cultural mismatches in child care practices and their adherence to CPC recommendations. For those who have positive beliefs/attitudes towards their traditional child care practices, perceived cultural similarity in these practices may promote higher adherence to CPC recommendations. However, we can have the opposite relationship for those who have negative beliefs/attitudes towards their traditional child care practices.

The discussion above reinforces our idea of exploring, also at an intergroup level, the relationship between immigrant caregivers' adherence to CPC recommendations and their acculturation orientations, namely their preferences to maintain some practices of their origin culture (e.g. children's feeding practices). This idea found support in some results of **Study 1** (**Chapter 2**) and from other national research (Backström, 2009), which highlighted that Cape

Verdean caregivers' tend to hide from health professionals the adoption of traditional practices often for fear of their negative attitudes. This contention may to some extent reflect perceived experiences of prejudice and discrimination on health services, which are traditionally conceptualized by theoretical models as important predictors of immigrants' acculturation processes (Berry, 2005). Nevertheless, **Study 4** (**Chapter 5**) did not find significant relationships between Brazilian caregivers' own acculturation orientations and their adherence to CPC recommendations. Perhaps our results would benefit from the use of an acculturation measure more specific to the health/CPC context, especially considering the specificity of immigrant caregivers' adherence behaviors. Even so, the main findings from **Study 4** (**Chapter 5**) indicated that Brazilian caregivers' perceptions about the Portuguese preferences towards contact with them were positively associated with their adherence to recommendations for a safe psychomotor development; but only when the effects of other important psychosocial determinants of adherence, such as time in Portugal and concerns about pediatric medication, were not controlled for. This conclusion is in line with a few recent research that interrelates immigrants' own acculturation orientations and their adherence to medical recommendations, via their perceptions of doctors' expectations towards immigrants' acculturation orientations (i.e. regarding adopting the new culture or keeping their previous culture; Whittal, Hanke & Lippke, 2017). Furthermore, it supports the potential relevance of acculturation approaches to studying immigrants' adherence behaviors, which go beyond the more common use of *proxy measures* or unidimensional views of acculturation (Schwartz & Unger, 2017; Thomson & Hoffman-Goetz, 2009). Indeed, the results of **Study 4** (**Chapter 5**) that interrelate immigrant caregivers' adherence to CPC recommendations with their time in Portugal ended up being inconsistent; time in Portugal was positively associated with their adherence to paid vaccines, but negatively associated with their adherence to recommendations for a safe psychomotor development. This reinforces the notion that the complex acculturation psychosocial processes and their relationship with health outcomes should not be accessed by these *proxy measures*.

Caregivers' social representations about CPC services

According to the main results of **Study 1** (**Chapter 2**), immigrant caregivers' perceived central role of vaccination in CPC was identified as a relevant determinant to their adherence to recommended vaccines. Nevertheless, and as previously discussed, these caregivers did not recognize other important CPC health recommendations (e.g. related with children's developmental surveillance or with prevention of childhood injuries), which may

hinder their adherence behaviors. Thus, the main findings of **Study 2** (**Chapter 3**), which will be discussed in this subsection, intended to provide an answer to the third aim of this thesis, i.e. identifying immigrant caregivers' social representations of Portuguese CPC services. This was particularly important since previous studies have suggested that individuals' knowledge and common sense representations about health or illness may determine certain health behaviors, including treatment adherence (Byrne, 2013; Holmes et al., 2014; Leventhal & Cameron, 1987).

The main findings of **Study 2** (**Chapter 3**), allowed us to conclude, firstly, about the perceived general characteristics of CPC (e.g. CPC lay designations and health professionals; health system/insurance used to access the services). In the particular case of Cape Verdean/Brazilian caregivers, they emphasized some differences between the Portuguese services and those from their countries of origin. Since these differences included the identification of the hospitals as the main health services in Cape Verde/Brazil or the assumption that children only accessed the origin health services to receive treatments/vaccines, these general representations may impact immigrant caregivers' demand for children's preventive health care and so contribute, ultimately, to their non-adherence to the CPC health recommendations.

More specifically, the results of **Study 2** (**Chapter 3**) identified caregivers' perceptions of some of CPC activities, drawing upon a social representations approach (Flick, 2000; Joffe 2002 [a)]; Joffe, 2002 [b)]). Generally, immigrant (and non-immigrant) caregivers identified several CPC activities that are preconized in the clinical guidelines and covered by the general functions of the services, i.e. health promotion, disease prevention and early detection (DGS, 2013; van Esso et al., 2010). Nevertheless, overall caregivers' discourses emphasized CPC activities more associated with the monitoring of physical development or with children's biological health (e.g. screening of physical growth, vaccination, nutritional counselling) and neglected those that are more related with children's social or psychomotor development (e.g. screening of psychomotor development, parental support, counselling to prevent childhood accidents). From a social representation approach, caregivers' emphasis on children's biomedical aspects of health could be framed within the CPC historical background. Indeed, CPC activities more associated with the monitoring of physical development or with children's physical health have been effectively emphasized in the clinical guidelines of the last thirty years (DGS, 2013; Jenni, 2016). Hence, health institutions and/or professionals may endorse a more biomedical (versus biopsychosocial) approach in

some of their daily practices. Besides this, caregivers' social representations of CPC activities should also be framed within their specific social and/or parental contexts. For example, their lower emphasis on some CPC activities (e.g. forwarding children to other medical specialties or health institutions) might be accounted for by the specific nature of these activities, which are aiming at caregivers who shared particular needs.

Finally, and as it was our initial contention, the main results of **Study 2** (**Chapter 3**) showed that members of different social groups held different profiles of CPC representations. The most disadvantaged caregivers (lower SES), Portuguese or immigrants, who went to public services, identified the monitoring of children's physical development and the promotion of a healthy diet as the central activities of CPC. Conversely, caregivers from a medium to higher socio-economic status, who went to private services, had a more detailed representation of CPC and essentially anchored on activities of anticipatory guidance (i.e. referencing, promotion of hygiene and prevention of accidents). As such, it is the most vulnerable group of caregivers that neglects the potentialities of CPC services and its recommendations, which usually contribute to buffer the effects of certain social vulnerabilities on children's health (e.g. recommendations regarding what is expected in terms of the next steps of child psychomotor development). Conversely, it was the group of the most advantaged caregivers who recognized the presence of CPC biopsychosocial and preventive approach, which traditionally empowers families with more adequate parental competencies, hence contributing to the protection of their children's health.

Once again, these multifaceted and fluid representations of CPC were discussed thorough a social representation perspective (Flick, 2000; Joffe 2002 [a)]; Joffe, 2002 [b)]) and so, instead of producing a generalized framework about caregivers' understanding of these services or its activities, unveiled the specific complexities of their historical, social and cultural meanings. On one hand, caregivers' representations of CPC were possibly constructed through the interaction and communication with health professionals, where a distinct emphasis of CPC health promotion focus according to caregivers' socio-economic or immigrant status, may have contributed to different shared social representations of CPC activities or recommendations. On the other hand, immigrant caregivers' representations of CPC, mainly focused on children's physical health dimensions, may be anchored in their experiences with/representations of the services in their countries of origin, which seem to be perceived as undervaluing more preventive approaches to children's health.

Overall, this discussion led us to put forth the idea that immigrant and/or lower SES caregivers' representations of CPC activities, by being mainly focused on nutritional recommendations, may contribute to their lower adherence to other kinds of preventive CPC recommendations (e.g. prevention of childhood accidents).

Limitations and directions for further research

Overall, some limitations should be pointed out to this thesis, which are in turn related to future directions for research. First, limitations regarding the measurement of caregivers' adherence behaviors are identified. Although the development of the CPC-Adherence Scale was based on international literature on CPC service activities (van Esso et al., 2010; Kuo et al., 2012), the majority of the items covered the technical information of the National Child Health Program (DGS, 2013) and were exclusively evaluated by a panel of Portuguese experts. Thus, the extent to which this measure could be applied in other countries is yet to be investigated. Moreover, and although the CPC-Adherence Scale revealed good psychometric properties (e.g. content and criterion-validity), its convergent validity was not assessed, because there were no other instruments that measured similar constructs to the adherence to CPC preventive health recommendations. Finally, and despite it was expectable that the majority of caregivers recognized the relevance of CPC and, hence, reported high levels of adherence, participants' responses to the CPC-Adherence Scale could have been particularly influenced by social desirability, as some of caregivers' non-adherence behaviors could be considered as a signal of parental negligence (e.g. not prevent some childhood accidents).

Second, there are limitations regarding sampling and the generalization of our findings. Considering that Brazilian and Cape Verdean are the most representative groups of immigrants in Portugal (SEF, 2016), the majority of the findings reflect the perceptions of immigrant caregivers from these nationalities. Nevertheless, this may compromise the generalization of our main results to other immigrant groups in the country, as these may have different cultural health-related specificities. Indeed, in **Study 1** (**Chapter 2**), it was found that some of the psychosocial determinants of adherence to CPC recommendations were particularly emphasized by Cape Verdean caregivers (e.g. expectations about traditional versus pharmacological treatments) but not by the Brazilian caregivers. Even so, and because **Study 4** (**Chapter 5**) was only conducted with Brazilian caregivers, these cultural health-related specificities and their influence on immigrants' adherence behaviors were not analyzed in depth. Also, the majority of immigrant caregivers who participated in this thesis

were mothers. Although this was not entirely unexpected, as they are usually the main caregivers and main users of health/CPC services (Andrade, 2008), this may limit our knowledge about the perceptions of other potential caregivers, such as fathers or grandparents. It should be noted that to achieve our main goal we have only focused on immigrants' perspectives, neglecting the perspectives of other important stakeholder such as health-care professionals. Thus, the inclusion of their views, such as those of other caregivers besides mothers, should be a topic of concern for further research.

Third, some limitations regarding the operationalization of the psychosocial determinants of immigrants' adherence behaviors are also noteworthy. Because of the innovative character of the topic being investigated, the construction of the hypothesized theoretical model (**Study 4; Chapter 5**) was mainly based on our qualitative findings and on the scarce previous research on determinants of immigrants' adherence to pharmacological treatments. This hampered the operationalization of some of the psychosocial determinants reflected in our qualitative findings. For example, the use of general measures to assess the quality of interpersonal relationships and communication processes with health professionals, instead of specific measures of health professionals' multicultural competencies/sensitivity, may have accounted for the absence of results at the interpersonal level. Moreover, the acculturation measure that was used was not specific to the health/CPC context, which may have accounted for the weaker results at this level, particularly if we consider that immigrants' acculturation processes may vary according to their different life domains (Arends-Toth & van de Vijver, 2003; Navas et al., 2005; Phalet et al., 2000). Also, we had to develop indicators of the perceived cultural mismatches in child care practices, which despite their high face validity, were not previously tested.

Finally, there are also limitations regarding the design of **Study 4** (**Chapter 5**). By testing the proposed theoretical model with a cross-sectional study, no inferences about the causal or temporal relationships between the identified predictors of immigrant caregivers' adherence to CPC recommendations can be made. Future prospective studies should be developed to further investigate such relationships. Besides this, and also because of the innovative character of the topic under research, we have only tested direct relationships between the proposed psychosocial determinants and Brazilian caregivers' adherence to CPC recommendations. Nevertheless, the previous discussion suggests that some of these psychosocial determinants may eventually be interrelated as to better account for immigrant caregivers' adherence to CPC recommendations. For example, it is possible that the effects of

perceived similarities in child care practices on immigrant caregivers' adherence to nutritional counselling could be modulated by their different beliefs/attitudes towards their traditional feeding practices. Also, as caregivers' representations of CPC services were associated with their SES, it is possible that the former may partially account for the effects of the latter on caregivers' adherence. These contentions, however, remain to be tested.

Despite the abovementioned limitations, our main findings bear relevant implications, not only in theoretical and empirical terms, but also to health professionals' daily practices, which will be detailed next.

Theoretical, empirical and practical contributions of the present findings

From a theoretical point of view, one of the greatest strengths of this thesis was the conceptualization of the specific concept of adherence to CPC recommendations, which was defined by a triangulation of different sources, namely the technical literature on CPC, the feedback from experts and the collected and analyzed empirical data reflecting caregivers' perspectives. Besides this, our work conceptualized caregivers' CPC representations through a social perspective in which individuals' common sense knowledge is framed as an historical, social and cultural construction. Thus, this theoretical understanding goes beyond what has been proposed by the classical theories in health psychology, which often frame individuals' knowledge and representations about health topics, and their influence on their health behaviors, in a more rational and cognitivist approach.

This thesis explored the role of some psychosocial determinants on immigrant caregivers' adherence to CPC recommendations, which contributes to increase the knowledge on immigrants' therapeutic adherence, especially in what concerns preventive health recommendations. By drawing upon a psychosocial approach, this thesis contributes to a theoretical integration between socio-cognitive models, widely used by health psychologists to predict individuals' adherence behaviors, and theories conceptualizing the social and cultural dimensions that may help to better understand immigrants' "non-intentional" adherence. The identified determinants, and reflections on other main findings from this thesis, also raise new hypotheses regarding the predictive role of other psychosocial determinants that may inform future research, which is needed to better understand the complexity of immigrant caregivers' adherence behaviors.

By exploring caregivers' social representations of CPC services, this thesis identified which CPC activities/health recommendations were mostly emphasized. This knowledge

contributes to reflect on how caregivers' representations of CPC may influence their demand for children's preventive health care and their adherence to preventive health recommendations. This is particularly relevant since we have concluded that different social groups may have different social representations of CPC activities and so the immigrant and/or lower SES caregivers' representations, by being mainly focused on the children's physical development activities, may contribute to their lower adherence to other kinds of preventive CPC recommendations.

In empirical terms, and by using the developed and validated CPC-Adherence Scale, this thesis measured caregivers' adherence to different CPC recommendations in a sample of Portuguese and immigrant caregivers from different origins, and also in a sample from Brazilian immigrant caregivers. This empirical knowledge, and especially considering the considerable sample size of **Study 3** (**Chapter 4**), may constitute a relevant and innovative health indicator, which goes beyond what is usually measured in the CPC context; i.e. the coverage rates of the national vaccination program.

From a practical point of view, this thesis contributed with a valid measure, which may be used both in research and in daily CPC services to assess caregivers' adherence to different CPC recommendations and so contribute, ultimately, to improve their adherence behaviors. The CPC-Adherence Scale can be also used to evaluate intervention programs conducted with groups that are particular vulnerable to non-adherence to CPC recommendations (e.g. immigrants or low SES caregivers) and so contributing to the promotion of their children's health or well-being.

The conclusions about which CPC activities were emphasized in the caregivers' representations may help health professionals to reflect about how their daily practices reflect the whole range of preconized CPC activities. This understanding may contribute to the improvement of their practices so that all relevant CPC activities may be recognized by all caregivers, regardless of their social and cultural backgrounds. Indeed, the identification of different CPC activities by different social groups may emphasize the need to eventually tailor health-care interventions/communication to the group specificities. Finally, the identification of psychosocial determinants of adherence, some of them particularly relevant to Brazilian and/or Cape Verdean caregivers, may contribute to increasing health professionals' multicultural sensitivity and competence, which are essential to the development of knowledge-based interventions that intend to promote immigrants' adherence behaviors. Indeed, health professionals' awareness is of utmost relevance, especially considering that

some of these determinants are potentially modifiable (e.g. concerns about pediatric medication).

Summing up, this thesis embodied an ecological health perspective to explore the complexity and multidimensionality of immigrants' adherence behaviors. Through a psychosocial approach, we aimed to better understand immigrant caregivers' adherence behaviors in the particular context of CPC, because it preventive health recommendations may contribute to buffering some of the common health vulnerabilities of immigrant children. Overall, the findings show that the social and cultural contexts, traditionally underexplored in relation to individuals' health behaviors, may assume particular relevance in accounting for immigrants' "non-intentional" adherence behaviors. This thesis leaves its contribution by bringing new insights on the extent to which some these psychosocial determinants may be a barrier or facilitators of immigrant caregivers' adherence to CPC health recommendations.

REFERENCES

Arbuckle, J. (2011). IBM SPSS Amos 20 User's Guide. Mount Pleasant: Amos Development Corporation.

Ahmed, S., Shommu, N. S., Rumana, N., Barron, G. R., Wicklum, S., & Turin, T. C. (2016). Barriers to Access of Primary Healthcare by Immigrant Populations in Canada: A Literature Review. *Journal of Immigrant and Minority Health, 18*(6), 1522-1540. doi: 10.1007/s10903-015-0276-z.

Ajzen, I., & Fishbein, M. (2005) The influence of attitudes on behavior. In D. Albarracin, B.T. Johnson, & M. P. Zanna (Eds.), *Handbook of Attitudes and Attitude Change: Basic Principles* (pp. 173–221). Mahwah, New Jersey: Erlbaum.

Almeida, L. M., Casanova, C., Caldas, J., Ayres-de-Campos, D., & Dias, S. (2014). Migrant Women's Perceptions of Healthcare During Pregnancy and Early Motherhood: Addressing the Social Determinants of Health. *Journal of Immigrant and Minority Health 16*, 719–723, doi: 10.1007/s10903-013-9834-4.

Amorim, L. P., et al. (2018). Filling process of the Child Health Record in health care services of Belo Horizonte, Minas Gerais, Brazil. *Epidemiologia e Serviços de Saúde*, *27*(1). doi: 10.5123/S1679-49742018000100016

Anderson, L. A., & Dedrick, R. F. (1990). Development of the trust in Physician Scale: A measure to assess interpersonal trust in patient-physician relationships. *Psychological Reports, 67,* 1091-1100. Available from: https://doi.org/10.2466/pr0.1990.67.3f.1091.

Anderson, V. L. A. (2015). Promoting Childhood Immunizations. *The Journal for Nurse Practitioners, 11*(1), 1-10. doi: https://doi.org/10.1016/j.nurpra.2014.10.016.

Andrade, I. J. M. (2008). *Health's geography of immigrant population in the Metropolitan Area of Lisbon* (published in Portuguese). Lisboa: Alto Comissariado para a Imigração e Diálogo Intercultural/High Commissioner for Immigration and Intercultural Dialogue [ACIDI].

Arends-Tóth, J. V., & van de Vijver, F. J. R. (2006). Assessment of psychological acculturation: Choices in designing an instrument. In D. Sam & J. W. Berry (Eds.), *The*

Cambridge handbook of acculturation psychology (pp. 142–160). Cambridge: Cambridge University Press.

Bäckström, B. (2009). *Health and immigrants: The representations and practices about health and disease in the Cape Verdean community in Lisbon* (published in Portuguese). Lisboa: ACIDI.

Bandura, A. (1986). The Explanatory and Predictive Scope of Self-Efficacy Theory. *Journal of Social and Clinical Psychology, 4*, 359-373. Available from: https://doi.org/10.1521/jscp.1986.4.3.359.

Barak, S. Rubino, A., Grguric, J., Ghenev, E., Branski, D., Olah, E., & The EPA⁄UNEPSA Committee on Challenges and Goals of Paediatrics in the 21st Century. (2010). The future of primary paediatric care in Europe: reflections and Report of the EPA⁄UNEPSA Committee. *Acta Pædiatrica, 99*, 13–18. Available from: http://www.imd.org.rs/files/EPA-UNEPSA-REPORT.pdf.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology, 46*, 5–34. doi:10.1111/j.1464-0597.1997.tb01087.x.

Berry, J. W. (2005). Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations, 29*, 697–712. doi:10.1016/j.ijintrel.2005.07.013.

Bosworth, H. B., Weinberger, M., & Oddone, E. Z. (2006). Introduction. In H. B. Bosworth, E. Z. Oddone, & M. Weinberger (Eds.), *Patient treatment adherence: Concepts, interventions and measurement* (pp. 3-12). New York: Routledge.

Bourhis, R. Y., Moïse, L. C., Perreault, S., & Senécal, S. (1997). Towards an interactive acculturation model: A social psychological approach. *International Journal of Psychology, 32*(6), 369–386. doi:10.1080/002075997400629.

Brannon, L., Feist, J., & Updegraff, J. A. (2014): *Health Psychology: An Introduction to Behavior and Health*. Belmont: Wadsworth.

Bucks, R. S., Hawkins, K., Skinner, T. C., Horn, S., Seddon, P., & Horne, R. (2009). Adherence to treatment in adolescents with cystic fibrosis: the role of illness

perceptions and treatment beliefs. *Journal of Pediatric Psychology, 34*(8), 893-902. doi: 10.1093/jpepsy/jsn135.

Byrne, M. K. (2013). Enhancing Adherence to Medications. In M. L. Caltabiano and L. Ricciardelli (Eds.), *Applied Topics in Health Psychology* (pp. 446-461). United Kingdom: Wiley-Blackwell.

Carvalho, H. (2008). *Multivariate Analysis of Qualitative Data: the use of Multiple Correspondence Analysis with SPSS* (published in Portuguese). Lisboa: Edições Sílabo.

Castro, P., & Batel, S. (2008). Social representation, change and resistance: on the difficulties of generalizing new norms. *Culture & Psychology, 14*(4), 475-497. doi: 10.1177/1354067X08096512.

Cattell, R. B. (1966). The Scree Plot Test for the Number of Factors. *Multivariate Behavioral Research, 1*, 140-161. Available from: http://dx.doi.org/10.1207/s15327906mbr0102_10.

Charmaz, K. (2006). *Constructing Grounded Theory: A practical guide through qualitative analysis.* London: Sage Publications.

Cheng, I. H., Wahidi, S., Vasi, S., & Samuel, S. (2015). Importance of community engagement in primary health care: the case of Afghan refugees. *Australian Journal of Primary Health Care, 21*(3), 262-267. doi: 10.1071/PY13137

Chun, K. M., & Chesla, C. A. (2004). Cultural issues in disease management for Chinese Americans with type 2 diabetes. *Psychology & Health, 19*(6), 767-785. doi: 10.1080/08870440410001722958.

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319. Available from: http://www.personal.kent.edu/~dfresco/CRM_Readings/Clark_and_Watson_1995.pdf.

Clendon, J., & Dignam, D. (2010). Child health and development record book: tool for relationship building between nurse and mother. *Journal of Advanced Nursing 66*(5),

968–977. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2648.2010.05285.x.

Colby, J. A., Wang, F., Chhabra, J., & Pérez-Escamilla R. (2012). Predictors of medication adherence in an urban Latino community with healthcare disparities. *Journal of Immigrant and Minority Health, 14*(4), 589-595. doi: 10.1007/s10903-011-9545-7.

Conner, M., & Norman, P. (2005). *Predicting Health Behaviour*. Berkshire: McGraw-Hill Education.

Consedine, N. S. (2011). The demographic, system, and psychosocial origins of mammographic screening disparities: Prediction of initiating versus maintenance screening among immigrant and non-immigrant women. *Journal of Immigrant and Minority Health, 14*(4), 570-582. doi: 10.1007/s10903-011-9524-z.

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*, 1-9. Available from: http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=A3593CA3CC7DD8A36C6BC4A08A4958EE?doi=10.1.1.110.9154&rep=rep1&type=pdf.

Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing among five approaches*. Thousand Oaks: Sage Publications.

Dang, B. N., Westbrook R. A., Black, W. C., Rodriguez-Barradas, M. C., & Giordano T. P. (2013). Examining the link between patient satisfaction and adherence to HIV care: a structural equation model. *PLoS One, 8*(1), 1-7. doi: 10.1371/journal.pone.0054729.

Direção-Geral da Saúde/National institute of health [DGS]. (2009). Informative Note: *Immigrants' Access to the National Health Service* (published in Portuguese). Lisboa: DGS. Available from: https://www.dgs.pt/directrizes-da-dgs/orientacoes-e-circulares-informativas/circular-informativa-n-12dqsdmd-de-07052009.aspx.

DGS. (2013). *National program from child health* (published in Portuguese). Lisbon: DGS. Available from: https://www.dgs.pt/documentos-e-publicacoes/programa-tipo-de-atuacao-em-saude-infantil-e-juvenil.aspx.

DGS. (2015). *Evaluation of national vaccination plane* (published in Portuguese). Lisboa: DGS. Available from: https://www.dgs.pt/paginas-de-sistema/saude-de-a-a-z/programa-nacional-de-vacinacao/avaliacao-pnv.aspx.

Dias, S., Gama, A., Silva, A. C., Cargaleiro, H., Horta, R., Lemos, M., & Martins, M. R. (2011). Barriers in the immigrants' access and use of health services: The health professionals' perspectives (published in Portuguese). *Acta Médica Portuguesa, 24*(4), 511-516.

Dias, S., Gama, A., Silva, A. C., Cargaleiro, H., Horta, R., Lemos, M., & Martins, M. R. (2018). *Attitudes and representations regarding health, disease and access to health care in immigrant populations* (published in Portuguese). Lisboa: Observatório das Migrações [OM; national observatory from migrations] Available from: https://www.om.acm.gov.pt/documents/58428/177157/Estudo+%2362.pdf/8c3cb667-418b-4a63-9c2f-937c9dcad0cb.

Dias, S. F., Rocha, C. F., & Horta. R. (2009). *Sexual and reproductive health of African and Brazilian immigrant women* (published in Portuguese). Lisboa: ACIDI.

Dias, S. F., Severo, M., & Barros, H. (2008). Determinants of health care utilization by immigrants in Portugal. *BMC Health Services Research 8*, 200–207. Available from: https://doi.org/10.1186/1472-6963-8-207.

Dovidio, J. F., Love, A., Schellhaas, F. M. H., & Hewstone, M. (2017). Reducing intergroup bias through intergroup contact: Twenty years of progress and future directions. *Group Processes & Intergroup Relations, 20*(5), 606-620. doi: 10.1177/1368430217712052.

Dunbar-Jacob, J., Schlenk, E., & McCall, M. (2012). Patient Adherence to Treatment Regimen. In A. Baum, T.A. Revenson, & J. Singer (Eds.), *Handbook of Health Psychology*. (pp. 271-292). 2nd Edition. New York: Psychology Press.

Erger, J. S., & Marelich, W. D. (2004). Essay: Health care settings and their social dynamics. In W. D. Marelich & J. F. Erger (Eds.), *The social psychology of health: Essays and readings* (pp. 163-168). Thousand Oaks: Sage Publications.

Ferreira, P. L., & Raposo, V. (2015). *The voice of users: Monitoring the satisfaction of USF users and from a sample of UCSP users* (published in Portuguese). Lisboa: Ministery of health, Coimbra: Centro de Estudos e Investigação em Saúde da Universidade de Coimbra. Available from: http://www2.acss.min-saude.pt/Portals/0/2015.08.24-Relat%C3%B3rio%20Final-VF.pdf.

Flick, U. (2000). Qualitative Inquiries into Social Representations of Health. *Journal of Health Psychology, 5*(3), 315–324. doi: 10.1177/135910530000500303.

Flores, G., Abreu, M., & Tomany-Korman, S. C. (2005). Limited English proficiency, primary language at home, and disparities in children's health care: How language barriers are measured matters. *Public Health Reports, 120*, 418-430. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1497749/pdf/16025722.pdf.

Fok, C. C. T., & Henry, D. (2015). Increasing the Sensitivity of Measures to Change. *Prevention Science, 16*(7), 978–986. doi:10.1007/s11121-015-0545-z.

Fonseca, M. L., & Silva, S. (2010). *Health and immigration: Users and services in the area of influence of the health center from Graça* (published in Portuguese). Lisboa: ACIDI.

Foster, J. L. H. (2003). Representational Projects and Interacting Forms of Knowledge. *Journal for the Theory of Social Behaviour, 33*(3), 231-244. Available from: https://onlinelibrary.wiley.com/doi/pdf/10.1111/1468-5914.00216.

Fox, M., Thayer, Z., & Wadhwa, P. D. (2017). Assessment of acculturation in minority health research. *Social Science & Medicine*, *176*, 123-132. doi: org/10.1016/j.socscimed.2017.01.029.

França, A., & Guerra, R. (2015). *Adaptation of Portuguese immigrants in Angola: status, functional indispensability and acculturation strategies* (master's dissertation, written in Portuguese). ISCTE-Lisbon University Institute. Available from: https://repositorio.iscte-iul.pt/bitstream/10071/10426/3/Disserta%C3%A7%C3%A3o%20%C3%81vany%20Fran%C3%A7a%20-%20Adapta%C3%A7%C3%A3o%20de%20imigrantes.pdf.

Fuller, J. (2017). The new medical model: a renewed challenge for biomedicine. *CMAJ, 189*(17), E640-E641. doi: https://doi.org/10.1503/cmaj.160627.

Furr, R. M. (2011). *Scale Construction and Psychometrics for Social and Personality Psychology*. London: Sage Publications.

Garg, P., Ha, M. T., Eastwood, J., Harvey, S., Woolfenden, S., Murphy, E., Dissanayake, C., Jalaludin, B., Williams, K., McKenzie, A., Einfeld, S., Silove, N., Short, K., & Eapen, V. (2017). Explaining culturally and linguistically diverse (CALD) parents' access of healthcare services for developmental surveillance and anticipatory guidance: qualitative findings from the 'Watch Me Grow' study. *BMC Health Services Research, 17*(1), 217-228. doi: 10.1186/s12913-017-2143-1.

Gimeno-Feliu, L. A., Armesto-Gómez, J., Macipe-Costa, R., & Magallón-Botaya, R. (2009). Comparative study of pediatric prescription drug utilization between the Spanish and immigrant population. *BMC Health Services Research, 9*, 217-225. doi: 10.1186/1472-6963-9-225.

Gimeno-Feliu, L. A., Calderón-Larrañaga, A., Diaz, E., Poblador-Plou, B., Macipe-Costa, R., & Prados-Torres A. (2015). The healthy migrant effect in primary care. *Gaceta Sanitaria, 29*(1), 15-20. doi: 10.1016/j.gaceta.2014.07.007.

Gonçalves, A., Dias, S., Luck, M., Fernandes, M. J., & Cabral, J. (2003). Access to health care for migrant communities: Problems and perspectives of intervention (published in Portuguese). *Revista Portuguesa de Saúde Pública, 21*, 55-64. Available from: https://www.researchgate.net/profile/Jorge_Cabral3/publication/237596230_Acesso_aos_cuidados_de_saude_de_comunidades_migrantes_problemas_e_perspectivas_de_intervencao/links/0a85e530b047c971fe000000.pdf.

Greenacre, M. J. (2007). *Correspondence Analysis in Practice*. London: Chapman & Hall/CRC.

Griva, K., Ng, H. J., Loei, J., Mooppil, N., McBain, H., & Newman, S. P. (2013). Managing treatment for end-stage renal disease-a qualitative study exploring cultural perspectives on facilitators and barriers to treatment adherence. *Psychology & Health, 28*(1), 13-29. doi: 10.1080/08870446.2012.703670. Epub 2012 Jul 11.

Gurung, R. A. R. (2006). *Health psychology: A cultural approach*. Belmont: Thomson Higher Education.

Ha, J. F., Anat, D. S., & Longnecker, N. (2010). Doctor-Patient Communication: A Review *Ochsner Journal, 10*(1), 38–43. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3096184/pdf/i1524-5012-10-1-38.pdf.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Cluster Analysis. In Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (Eds.), *Multivariate Data Analysis: A Global Perspective*. (pp. 415-474). 7th Edition. Upper Saddle River: Pearson International Edition.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Cluster Analysis. In Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (Eds.), *Multivariate Data Analysis: A Global Perspective*. (pp. 599-638). 7th Edition. Upper Saddle River: Pearson International Edition.

Hakonsen, H., & Tuverud, E. L. (2011). Special challenges for drug adherence following generic substitution in Pakistani immigrants living in Norway. *European Journal of Clinical Pharmacology, 67*(2), 193-201. doi: 10.1007/s00228-010-0960-9.

Hall, J. A., & Roter, D. B. (2011). Physician-Patient Communication. In H. S. Friedman (Ed.), *The Oxford Handbook of Health Psychology* (pp. 317-346). Oxford: University Press.

Hamilton, T. G. (2015). The healthy immigrant (migrant) effect: In search of a better native-born comparison group. *Social Science Research, 54*, 353-365. doi: 10.1016/j.ssresearch.2015.08.008.

Hannan, J. (2015). Minority mothers' healthcare beliefs, commonly used alternative healthcare practices, and potential complications for infants and children. *Journal of the American Association of Nurse Practitioners, 27(6),* 338–348. doi: 10.1002/2327-6924.12153.

Heerman, W.J., Perrin, E. M., Sanders, L. M., Yin, H. S., Coyne-Beasley, T., Bronaugh, A.B., Barkin, S. L., & Rothman, R. L. (2016). Racial and Ethnic Differences in Injury

Prevention Behaviors Among Caregivers of Infants. *American Journal of Preventive Medicine, 51*(4), 411-418. doi: 10.1016/j.amepre.2016.04.020.

Hillen, M. A., de Haes, H. C., & Smets, E. M. (2011). Cancer patients' trust in their physician-a review. *Psychooncology, 20*(3), 227-41. doi: 10.1002/pon.1745.

Holmes E. A., Hughes, D. A., & Morrison, V. L. (2014). Predicting Adherence to Medications Using Health Psychology Theories: A Systematic Review of 20 Years of Empirical Research. *Value in Health, 17*(8), 863-76. doi: 10.1016/j.jval.2014.08.2671.

House, J. S., Landis, K. R., & Umberson, D. (2004). Social relationships and health. In W. D. Marelich & J. F. Erger (Eds.), *The social psychology of health: Essays and readings* (pp. 237-246). Thousand Oaks: Sage Publications.

Hsieh, H., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research, 15*(9), 1277-1288. Available from: https://doi.org/10.1177/1049732305276687.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. Available from: http://dx.doi.org/10.1080/10705519909540118.

Instituto Nacional de Estatística/National Statistic Institute [INE]. (2017). *Vaccination coverage rate to individuals up to 12 months of age, by geographical localization and type of vaccine administered* (published online in Portuguese). Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0007454&contexto=bd&selTab=tab2&xlang=pt.

Jack, K., McLean, S. M., Moffet, J. K., & Gardiner, E. (2010). Barriers to treatment adherence in physiotherapy outpatient clinics: A systematic review. *Manual Therapy, 15*, 220-228. doi: 10.1016/j.math.2009.12.004.

Javier, J. R., Huffman, L. C., & Mendoza, F. S., & Wise, P. H. (2009). Children with special health care needs: how immigrant status is related to health care access, health care utilization, and health status. *Maternal and Child Health Journal, 14*, 567-579. doi: 10.1007/s10995-009-0487-9.

Jenni, O. G. (2016). Starting the Debate: Rethinking Well-Child Care in Europe. *The Journal of Pediatrics, 179*, 276-277e1. Available from: http://www.jpeds.com/article/S0022-3476(16)30865-4/pdf.

[a)] Joffe, H. (2002). Social Representations and Health Psychology. *Social Science Information, 41*(4), 559-580. Available from: https://doi.org/10.1177/0539018402041004004.

[b)] Joffe. H. (2002). Representations of health risks: What social psychology can offer health promotion. *Health Education Journal, 61*(2), 153-165. Available from: https://doi.org/10.1177/001789690206100206.

Jolly, S., & Reeves, H. (2005). *Gender and migration: Overview report*. Bridge-Institute of United Kingdom: Development Studies. Available from: http://www.bridge.ids.ac.uk/sites/bridge.ids.ac.uk/files/reports/CEP-Mig-OR.pdf.

Jovchelovitch, S., & Gervais, M. (1999). Social representations of health and illness: the case of the Chinese community in England. *Journal of Community and Applied Social Psychology, 9*(4), 247-260. Available from: https://doi.org/10.1002/(SICI)1099-1298(199907/08)9:4<247::AID-CASP500>3.0.CO;2-E.

Kalich, A., Heinemann, L., & Ghahari, S. (2016). A Scoping Review of Immigrant Experience of Health Care Access Barriers in Canada. *Journal of Immigrant and Minority Health, 18*(3), 697-709. doi: 10.1007/s10903-015-0237-6.

Kemppainen V., Tossavainen K., & Turunen H. (2013). Nurses' roles in health promotion practice: an integrative review. *Health Promotion International, 28*(4), 490-501. doi: 10.1093/heapro/das034.

Kirkpatrick, S. I., Dodd, K. W., Reedy, J., & Krebs-Smith, S. M. (2012). Income and race/ethnicity are associated with adherence to food-based dietary guidance among US adults and children. *Journal of the Academy of Nutrition and Dietetics, 112*(5), 624-635. doi: 10.1016/j.jand.2011.11.012.

Kline, R. B. (2011). *Principles and practice of structural equation modelling.* 3rd Ed. New York: Guilford Press.

Kong, H., & Hsieh, E. (2012). The Social Meanings of Traditional Chinese Medicine: Elderly Chinese Immigrants' Health Practice in the United States. *Journal of Immigrant and Minority Health, 14*, 841-849. doi: 10.1007/s10903-011-9558-2.

Krueger, R. A., & Casey, M. A. (2000). *Focus groups: a practical guide for applied research.* 3rd Edition. Thousand Oaks: SAGE.

Kuo, A. A., Etzel, R. A., Chilton, L. A., Watson, C., & Gorski, P. A. (2012). Primary Care Pediatrics and Public Health: Meeting the Needs of Today's Children. *American Journal of Public Health, 102*(12), 17-23. doi: 10.2105/AJPH.2012.301013.

Lam, W. Y., & Fresco P. (2015). Medication Adherence Measures: An Overview. *BioMed Research International, 2015*, 1-12. doi: 10.1155/2015/217047.

Landrine, H., & Klonoff, E. A. (2001). Cultural Diversity and Health Psychology. In Baum, A., Revenson, T. A., & Singer, J. E. (Eds), *Handbook of Health Psychology* (pp. 851-892). New Jersey: Lawrence Erlbaum Associates.

Leventhal, H., & Cameron, L. (1987). Behavioral theories and the problem of compliance. *Patient Education and Counseling, 10*(2), 117-138. doi: 10.1016/0738-3991(87)90093-0.

Leventhal, H., Leventhal, E. A., & Contrada R. J. (1998). Self-regulation, health, and behavior: A perceptual-cognitive approach. *Psychology & Health, 13*(4), 717-733. Available from: https://doi.org/10.1080/08870449808407425.

Levensky, E. R., & O'Donohue, W. T. (2006). Patient adherence and non-adherence to treatments: An overview for health care providers. In W. T. O'Donohue & E. R. Levensky (Ed.), *Promoting treatment adherence: A practical handbook for health care providers* (pp. 3-14). Thousand Oaks: Sage Publications.

Levesque J. F., Harris M. F., & Russell G. (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *International Journal for Equity in Health, 11*, 12-18. doi: 10.1186/1475-9276-12-18.

Lima, M. L., & Bernardes, S. F. (2013). Research Methods in Social Psychology. In J. Vala & M. B. Monteiro (Eds.), *Handbook of Social Psychology* (published in Portuguese), (pp. 1-41). Lisboa: Fundação Calouste Gulbenkian.

Litwin, M. S. (1995). *How to Measure Survey Reliability and Validity*. Thousand Oaks: Sage Publications.

Llop-Gironés, A., Vargas Lorenzo, I., Garcia-Subirats, I., Aller, M. B., & Vázquez Navarrete, M. L. (2014). Immigrants' access to health care in Spain: a review. *Revista Española de Salud Pública 88(*6), 715-734. doi: 10.4321/S1135-57272014000600005.

Lopez-Class, M., Castro, F. G., & Ramirez, A. G. (2011). Conceptions of acculturation: A review and statement of critical issues. *Social Science & Medicine, 72*(9), 1555-1562. doi: 10.1016/j.socscimed.2011.03.011.

Machado, M. C., Santana, P., Carreiro, H., Nogueira, H., Barroso, R., & Dias, A. (2007). Maternal and child health care for a population of immigrants (published in Portuguese). *Revista Migrações, 1*, 103-127. Available from: http://hdl.handle.net/10400.10/660.

Magrin, M. E., D'Addario, M., Greco, A., Miglioretti, M., Sarini, M. Scrignaro, Steca P., Vecchio L., & Crocetti, E. M. (2015). Social Support and Adherence to Treatment in Hypertensive Patients: A Meta-Analysis. *Annals of Behavioral Medicine, 49*(3), 307-318. doi: 10.1007/s12160-014-9663-2.

Marmot, M. (2004). *The status syndrome: How social standing affects our health and longevity*. New York: AHolt Paperback.

Maroco, J. (2010). *Analysis of Structural Equations: Theoretical fundaments, software and applications* (published in Portuguese). Pêro Pinheiro: ReportNumber.

Martin, L. R., Haskard-Zolnierek, K. B., & DiMatteo, M. R. (2010). *Health Behavior Change and Treatment Adherence: Evidence-Based Guidelines for Improving Healthcare.* Oxford: University Press.

Mas, S. F., Allensworth, D. D., & Jones, C. P. (2010). Health promotion programs designed to eliminate health disparities. In Fertman, C. I., & Allensworth, D. D. (Eds), *Health Promotion Programs: From Theory to Practice* (pp. 29-56). San Francisco: Jossey-Bass.

Matthews, K. A., & Gallo, L. C. (2011). Psychological perspectives on pathways linking socioeconomic status and physical health. *Annual Review of Psychology, 62*, 501-530. doi: 10.1146/annurev.psych.031809.130711.

Matos, M. G., Gonçalves, A., & Gaspar T. (2004). Foreign adolescents in Portugal: A health issue (published in Portuguese). *Psicologia, Saúde e Doenças, 5*, 75-85. Available from: http://www.scielo.mec.pt/scielo.php?script=sci_arttext&pid=S1645-00862004000100005.

McNicholas, F. (2012). To adhere or not, and what we can do to help. *European Child & Adolescent Psychiatry, 21*(12), 657-663. doi: 10.1007/s00787-012-0304-7.

McQuaid, E. L., & Landier, W. (2017). Cultural issues in medication adherence: disparities and directions. *Journal of General Internal Medicine, 33*, 200-206. doi: 10.1007/s11606-017-4199-3.

Mendoza, F. S. (2009). Health disparities and children in immigrant families: A research agenda. *Pediatrics, 124*, 187-195. doi: 10.1542/peds.2009-1100F.

Miller, E. R., Shimabukuro, T. T., Hibbs, B., Moro, P. L., Broder, K. R., & Vellozzi, C. (2015). Vaccine Safety Resources for Nurses: The CDC supports nurses in promoting vaccination. *The American Journal of Nursing, 115*(8), 55–58. doi: 10.1097/01.NAJ.0000470404.74424.ee.

Mills, S. D., Fox, R. S., Gholizadeh, S., Klonoff, E. A., & Malcarne, V. L. (2017). Acculturation and Health Behaviors Among African Americans: A Systematic Review. *Journal of Cross-Cultural Psychology, 48*(7), 1073-1097. Available from: https://doi.org/10.1177/0022022117717029.

Moleiro, C., Silva, A., Rodrigues, R., & Borges, V. (2009). Health and mental health needs and experiences of minority clients in Portugal. *International Journal of Migration health and Social Care, 5*, 15-24. doi: 10.1108/17479894200900003.

Morgan, D. L., & Krueger, R. A. (1998). *The Focus Group Kit*. Thousand Oaks: Sage Publications.

Morrison, V., & Bennett, P. (2009). Health inequalities. In Morrison, V., & Bennett, P. (Eds.), An *Introduction to Health Psychology* (pp. 33-58). 2nd Edition. England: Pearson Education.

Mourão, S. S., & Bernardes, S. F. (2014). Ethnic Minorities' and Immigrants' Therapeutic (Non)Adherence: What Role for Social and Cultural Contexts? *Análise Psicológica, XXXII*(3), 1-11. doi: 10.14417/ap.835.

Mourão, S., & Bernardes, S. F. (2019). What determines immigrant caregivers' adherence to health recommendations from child primary care services? A grounded theory approach, *Primary Health Care Research & Development, 20*(e31), 1-11. doi: 10.1017/S146342361900003.

Murray, M., Pullman, D., & Rodgers, T. H. (2003). Social Representations of Health and Illness among 'Babyboomers' in Eastern Canada. *Journal of Health Psychology, 8*(5), 485-99. doi: 10.1177/13591053030085002

Navas, M., García, M. C., Sánchez, J., Rojas, A. J., Pumares, P., & Fernández, J. S. (2005). Relative Acculturation Extended Model (RAEM): New contributions with regard to the study of acculturation. *International Journal of Intercultural Relations, 29*(1), 21-37. Available from: https://doi.org/10.1016/j.ijintrel.2005.04.001.

Nencini A., Sarrica M., Cancian R., & Contarello A. (2015). Pain as social representation: a study with Italian health professionals involved in the 'Hospital and District without Pain' project. *Health Promotion International, 30*(4), 919-928. doi: 10.1093/heapro/dau027.

Nguyen, T. M., La Caze, A., & Cottrell, N. (2014). What are validated self-report adherence scales really measuring?: a systematic review. *British Journal of Clinical Pharmacology, 77*(3), 427-445. doi: 10.1111/bcp.12194.

Nielsen, S. S., & Krasnik A. (2010). Poorer self-perceived health among migrants and ethnic minorities versus the majority population in Europe: a systematic review. *International Journal of Public Health, 55*(5), 357-371. doi: 10.1007/s00038-010-0145-4.

O'Connor, B. P. (2000). SPSS and BAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers, 32*(3), 396-402. Available from: https://link.springer.com/content/pdf/10.3758%2FBF03200807.pdf.

O' Rourke, G., & O' Brien, J. J. (2017). Identifying the barriers to antiepileptic drug adherence among adults with epilepsy. *Seizure, 45,* 160-168. doi: 10.1016/j.seizure.2016.12.006.

Oliveira, C. R., & Gomes, N. (2018). *Migrations and health in numbers: the Portuguese case. Thematic statistical notebook #2* (published in Portuguese). Lisboa: OM. Available from: https://www.om.acm.gov.pt/documents/58428/440932/Caderno+Estat%C3%ADstico+OM+%232+%E2%80%9CMigra%C3%A7%C3%B5es+e+Sa%C3%BAde+em+N%C3%BAmeros+-+o+caso+portugu%C3%AAs%E2%80%9D.pdf/f553a541-cb52-4036-bb31-46843ca4fdab

Peden, M., Oyegbite, K., Ozanne-Smith, J., Hyder, A. A., Branche, C., Rahman, A. K. M. F., Rivara, F., et *al.* (2008). *World Report on Child Injury Prevention*. Geneva: World Health Organization [WHO]. ISBN: 978 92 4 156357 4.

Pereira, M. G., Pedras, S., & Machado, J. C. (2013). Adaptation of Trust in Physician Scale for Patients with Type 2 Diabetes and their Partners. *Psicologia: Reflexão e Crítica, 26*(2), 287-295. Available from: http://www.scielo.br/pdf/prc/v26n2/08.pdf.

Peters, D. H., Garg, A., Bloom, G., Walker, D. G., Brieger, W. R., & Rahman, M. H. (2008). Poverty and access to health care in developing countries. *Annals of the New York Academy of Sciences, 1136*, 161-171. Doi: 10.1196/annals.1425.011.

Phalet, K., Van Lotringen, C., & Entzinger, H. B. (2000). *Islam in de multiculturele samenleving: opvattingen van jongeren in Rotterdam.* Utrecht: European Research Centre on Migration and Ethnic Relations.

Picorelli, A.M., Máximo Pereira, L. S., Pereira, D. S., Felício, D., & Sherrington, C. (2014). Adherence to exercise programs for older people is influenced by program characteristics and personal factors: a systematic review. *Journal of Physiotherapy, 60*(3), 151-156. doi: 10.1016/j.jphys.2014.06.012.

Piontkowski, U., Rohmann, A., & Florack, A. (2002). Concordance of acculturation attitudes and perceived threat. *Group Processes & Intergroup Relations, 5*(3), 221–232. doi: 10.1177/1368430202005003003.

Priego-Hernandez, J. (2017). Sexual health in transition: A social representations study with indigenous Mexican young women. *Journal of Health Psychology, 22*(5), 661-673. Available from: https://doi.org/10.1177/1359105315611954.

Prochaska, J. O., DiClemente, C. C., Velicer, W. F., & Rossi, J. S. (192). Criticisms and concerns of the transtheoretical model in light of recent research. *British Journal of Addiction, 87*, 825-835. Available from: https://doi.org/10.1111/j.1360-0443.1992.tb01973.x.

Riekert, K. A. (2006). Integrating Regimen Adherence Assessment into Clinical Practice. In O'Donohue, W. T., & Levensky, E. R. (Eds.), *Promoting Treatment Adherence: A Practical Handbook for Health Care Providers* (pp. 17-34). Thousand Oaks: Sage Publications.

Robbins, R. N., D'Aquila, E., Morgello, S., Byrd, D., Remien, R. H., & Mindt, M. R. (2012). Cultural Influences on Antiretroviral Therapy Adherence Among HIV-Infected Puerto Ricans. *Journal of the Association of Nurses in AIDS Care, 23*(6), 531-538. doi: 10.1016/j.jana.2011.12.006.

Roberts, J. (2017). Parents, clinicians and the genesis of a contested diagnosis: the development of knowledge surrounding pediatric bipolar disorder in the United States. *Papers on Social Representations, 26*(2), 1.1-1.25. Available from: http://psr.iscte-iul.pt/index.php/PSR/article/view/244.

Rodríguez-Gómez, J. R., & Salas-Serrano, C. C. (2006). Treatment Adherence in Ethnic Minorities: Particularities and Alternatives. In O'Donohue, W. T., & Levensky, E. R. (Eds), *Promoting Treatment Adherence: A Practical Handbook for Health Care Providers* (pp. 393-400). Thousand Oaks: Sage Publications.

Roque, H., Veloso, A., & Ferreira, P. L. (2016). Portuguese version of the EUROPEP questionnaire: contributions to the psychometric validation. *Revista de Saúde Pública, 50*(61). Available from: http://www.scielo.br/pdf/rsp/v50/0034-8910-rsp-S1518-87872016050006259.pdf.

Rosa, C. F. S. C. (2007). *Mental health in a migratory context: A study in the Lisbon area* (master thesis, written in Portuguese). Lisboa: Universidade Aberta: Available from: https://repositorioaberto.uab.pt/bitstream/10400.2/638/1/LC383.pdf.

Salgado, T., Marques, A., Geraldes, L., Benrimoj, S., Horne, R., & Fernandez-Llimos, F. (2013). Cross-cultural adaptation of the Beliefs about Medicines Questionnaire into Portuguese. *São Paulo Medical Journal, 131*(2), 88-94. Available from: http://www.scielo.br/pdf/spmj/v131n2/1516-3180-spmj-131-02-88.pdf.

Schmeer, K. K. (2012). Early childhood economic disadvantage and the health of Hispanic children. *Social Science & Medicine, 75*(8), 1523-1530. doi: 10.1016/j.socscimed.2012.05.031.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. *The Journal of Educational Research, 99*(6), 323–338. Available from: https://doi.org/10.3200/JOER.99.6.323-338.

Schwartz, S. J., & Unger, J. (Eds.). (2017). *The Oxford Handbook of Acculturation and Health*. Oxford University Press.

Schwarzer, R., & Luszczynska, A. (2008). How to Overcome Health-Compromising Behaviors: The Health Action Process Approach. *European Psychologist, 13*, 141-151. Available from: https://doi.org/10.1027/1016-9040.13.2.141.

Schwarzwald, H. (2005). Illnesses among recently immigrated children. *Seminars in pediatric infectious diseases, 16,* 78-83. doi: 10.1053/j.spid.2005.12.003.

Schwebel, D. C., & Brezausek, C. M. (2009). Language acculturation and pediatric injury risk. *Journal of Immigrant and Minority Health, 11,* 168-173. doi: 10.1007/s10903-008-9158-y.

Sendt, K., Tracy, D., & Bhattacharyya, S. (2015). A systematic review of factors influencing adherence to antipsychotic medication in schizophrenia-spectrum disorders. *Psychiatry Research, 225*, 14–30. doi: 10.1016/j.psychres.2014.11.002.

Serviço de Estrangeiros e Fronteiras/National service from foreign and borders [SEF]. (2016). *Report from immigration, borders and asylum* (published in Portuguese). Oeiras: SEF, Department of planning and training.

Shapiro, R., & Herivel, M. (2006). In W. T. O'Donohue & E. R. Levensky (Ed.), *Promoting treatment adherence: A practical handbook for health care providers* (pp. 119-134). Thousand Oaks: Sage Publications.

Silva, A. C., & Martingo, C. (2007). Friendly health units for migrants – An answer to the challenge of multiculturalism in Portugal (published in Portuguese). *Revista Migrações, 1,* 155-159. Available from: https://www.om.acm.gov.pt/documents/58428/183863/migracoes1_art8.pdf/33b59bcc-3413-499c-bc39-ab368d00f8ee.

Sime, D. (2014). 'I think that Polish doctors are better': newly arrived migrant children and their parents' experiences and views of health services in Scotland. *Health & Place, 30,* 86–93. doi: 10.1016/j.healthplace.2014.08.006.

Sousa, J. E. X. F. (2006). *Ukrainian immigrants in Portugal and health care* (published in Portuguese). Porto: Alto-Comissariado para a Imigração e Minorias Étnicas/High Commissioner for Immigrantion and Ethnic Minorities [ACIME].

Straub, R.O. (2012). Health Psychology: *A Biopsychosocial Approach*. New York: Worth Publishers.

Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. California: Sage Publications.

Strecher, V. J., Champion, V. L., & Rosenstock, I. M. (1997). The health belief model and health behavior. In D. S. Gochman (Ed.), *Handbook of health behavior research 1: Personal and social determinants* (pp. 71-91). New York, NY, US: Plenum Press.

Taylor, S. E. (2011). Social Support. In Friedman, H. S. (Ed), *The Oxford Handbook of Health Psychology* (pp. 189-214). Oxford: University Press.

Taylor, C. J., La Greca, A., Valenzuela, J. M., Hsin, O., & Delamater, A. M. (2016). Satisfaction with the Health Care Provider and Regimen Adherence in Minority Youth with Type 1 Diabetes. *Journal of Clinical Psychology in Medical Settings, 23*(3), 257-268. doi: 10.1007/s10880-016-9460-0.

Taylor, S. E., Repetti, R. L., & Seeman, T. (1997). Health psychology: What is an unhealthy environment and how it gets under your skin? *Annual Review of Psychology, 48*, 411-447. doi: 10.1146/annurev.psych.48.1.411.

Terraza-Núñez, R., Toledo, D., Vargas, I., & Vázquez, M. L. (2010). Perception of the Ecuadorian population living in Barcelona regarding access to health services. *International Journal of Public Health, 55*(5), 381-390. doi: 10.1007/s00038-010-0180-1.

Thom, D. H., Hall, M. A., & Pawlson, L. G. (2004). Measuring patients' trust in physicians when assessing quality of care. *Health Affairs*, *23*(4), 124-132. doi: 10.1377/hlthaff.23.4.124.

Thomson, M. D., & Hoffman-Goetz, L. (2009). Defining and measuring acculturation: a systematic review of public health studies with Hispanic populations in the United States. *Social Science & Medicine, 69*(7), 983-991. doi: 10.1016/j.socscimed.2009.05.011

Tijerina, M. S. (2006). Psychosocial factors influencing Mexican-American women's adherence with hemodialysis treatment. *Social Work in Health Care, 43*(1), 57-74. doi: 10.1300/J010v43n01_04.

Tijerina, M. S. (2009). Mexican American women's adherence to hemodialysis treatment: A social constructivist perspective. *Social Work, 54*(3), 232-242. doi: 10.1093/sw/54.3.232.

Travassos, C., & Martins, M. (2004). A review on the concepts of access and use of health services (published in Portuguese). *Cadernos de Saúde Pública, 20*(2), 190-198. Available from: http://www.scielo.br/scielo.php?script=sci_abstract&pid=S0102-311X2004000800014&lng=en&nrm=iso&tlng=pt.

Traylor, A. H., Schmittdiel, J. A., Uratsu, C. S., Mangione C. M., & Subramanian, U. (2010). Adherence to cardiovascular disease medications: Does patient-provider race/ethnicity and language concordance matter? *Journal of General Internal Medicine, 25*(11), 1172-1177. doi: 10.1007/s11606-010-1424-8.

Tucker, C. M., Herman, K. C., Ferdinand, L. A., Bailey, T. R., Lopez, M. T., Beato, C., Adams, D., & Cooper, L. L. (2007). Providing Patient-Centered Culturally Sensitive Health Care: A Formative Model. *The Counselling Psychologist, 35*(5), 679-705. Available from: https://doi.org/10.1177/0011000007301689.

Tucker, C. M., Marsiske, M., Rice, K. G., Nielson, J. J., & Herman, K. (2011). Patient-Centered Culturally Sensitive Health Care: Model Testing and Refinement. *Health Psychology, 30*(3), 342-350. doi: 10.1037/a0022967.

Vala, J. (2005). Content Analysis (published in Portuguese). In Silva, A. S., & Pinto, J. M. (Eds), *Methodologies from social sciences* (pp. 101-128). Porto: Edições Afrontamento.

van Esso, D., del Torso, S., Hadjipanayis, A., Biver, A., Jaeger-Roman, E., Wettergren, B., Nicholson, A., & Primary-Secondary Working Group (PSWG) of European Academy of Paediatrics (EAP). (2010). Paediatric primary care in Europe: variation between countries. *Archives of Disease in Childhood, 95*(10), 791-795. doi: 10.1136/adc.2009.178459.

Vissman, A. T., Hergenrather, K. C., Rojas, G., Langdon, S. E., Wilkin, A. M., & Rhodes, S. (2011). Applying the theory of planned behavior to explore HAART adherence among HIV-positive immigrant Latinos: Elicitation interview results. *Patient Education and Counseling, 85*(3), 454-460. doi: 10.1016/j.pec.2010.12.004.

Vissman, A. T., Young, A. M., Wilkin, A. M., & Rhodes, S. D. (2013). Correlates of HAART adherence among immigrant Latinos in the southeastern United States. *Aids Care, 25*, 356-363. doi: 10.1080/09540121.2012.701722.

Wafula, E. G., & Snipes, S. A. (2014). Barriers to health care access faced by black immigrants in the US: theoretical considerations and recommendations. *Journal of Immigrant and Minority Health, 16*(4), 689-698. doi: 10.1007/s10903-013-9898-1.

Wensing, M., Mainz, J., & Grol, R. (2000). A standardised instrument for patient evaluations of general practice care in Europe. *European Journal of General Practice, 6*(3), 82-87. doi: 10.3109/13814780009069953.

Weinstein, N. D., Sandman, P. M., & Blalock, S. J. (2008). The precaution adoption process model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 123-147). San Francisco, CA, US: Jossey-Bass.

Whittal, A., Hanke, K., & Lippke S. (2017). Investigating acculturation orientations of patients with an immigration background and doctors in Canada: implications for medical advice adherence. *Quality of Life Research, 26*(5). doi: 10.1007/s11136-016-1438-8.

Whittal, A., Hanke, K., & Lippke S. (2017). Investigating acculturation orientations of patients with an immigration background and doctors in Canada: implications for medical advice adherence. *Quality of Life Research, 26*(5), 1223-1232. doi: 10.1007/s11136-016-1438-8.

Whittal, A., & Lippke, S. (2016). Investigating patients with an immigration background in Canada: relationships between individual immigrant attitudes, the doctor-patient relationship, and health outcomes. *BMC Public Health, 16*(23), 1-10. doi:10.1186/s12889-016-2695-8.

Whittal, A., & Rosenberg, E. (2015). Effects of individual immigrant attitudes and host culture attitudes on doctor-immigrant patient relationships and communication in Canada. *International Journal for Equity in Health, 14*(108), 1-11. doi: 10.1186/s12939-015-0250-3.

World Health Organization [WHO]. (2003). Adherence to Long-Term Therapies: Evidence for Action. WHO. Available from: https://www.who.int/chp/knowledge/publications/adherence_report/en/.

Yin, R. K. (2011). *Qualitative Research from Start to Finish.* New York: The Guilford Press.

Zagefka, H., Binder, J., Brown, R., Kessler, T., Mummendey, A., Funke, F., Demoulin, S., Leyens, J., & Maquil, A. (2014). The relationship between acculturation preferences and prejudice: Longitudinal evidence from majority and minority groups in three European countries. *European Journal of Social Psychology, 44,* 578-589. doi: 10.1002/ejsp.2044

Zagefka, H., & Brown, R. (2002). The relationship between acculturation strategies, relative fit and intergroup relations: immigrant-majority relations in Germany. *European Journal of Social Psychology, 32,* 171-188. doi: 10.1002/ejsp.73.

Zolnierek, K. B. H, & DiMatteo, M. R. (2009). Physician Communication and Patient Adherence to Treatment: A meta-analysis. *Medical Care, 47*(8), 826–834. doi: 10.1097/MLR.0b013e31819a5acc.

APPENDIX A – Socio-demographic questionnaire from Study 1

1. Shared questions

Gender:
- ❍ Men
- ❍ Women

Age: _____ years

Marital status:
- ❍ Single
- ❍ Married
- ❍ Divorced
- ❍ Widowed
- ❍ Live in marital union

Nationality: _____

Household (people you live with)**:** _____

Children:
- ❍ Yes
- ❍ No

If you answered "yes" to the question above, please indicate:
How many children do you have? _____
Their ages: _____

Besides to your children, are you responsible from another child?
- ❍ Yes
- ❍ No

If you answered "yes" to the question above, please indicate:
How many children are you responsible for? _____
Kinship with them: _____
Their ages: _____

Years of school: _____

Employment status:
- ❍ Employed
- ❍ Unemployed
- ❍ Retired

Profession: _____

Monthly household income:

- ❍ Less than 485€
- ❍ Between 485€ and 750€
- ❍ Between 750€ and 1000€
- ❍ Between 1000€ and 1500€
- ❍ More than 1500€

2. Immigrants' specific questions

Country of origin: _____

Time in Portugal: _____

Legal status in Portugal:

- ❍ Legalization in process
- ❍ Temporary resident permission
- ❍ Permanent resident permission
- ❍ Other. What other: _____

APPENDIX B – The CPC-Adherence Scale (Portuguese version)

As perguntas que se seguem são sobre o seguimento dos conselhos dados nas consultas de rotina do(a) seu(sua) filho(a). O grau em que os pais seguem esses conselhos pode ser muito variável, por vários motivos: ser difícil integrá-los nos hábitos da família; serem diferentes dos que são dados por outros profissionais de saúde, familiares ou amigos. Assim, **gostaríamos de saber em que medida segue os conselhos dados nas consultas de rotina nos cuidados ao(à) seu(sua) filho(a).** Caso tenha mais do que um(a) filho(a) com 2 a 6 anos de idade, considere o(a) que for mais velho(a).

Assinale o número da escala que melhor **carateriza o grau em que segue ou seguiu cada um dos conselhos apresentados abaixo**. Se o conselho nunca lhe foi dado, na consulta ou por escrito, assinale "Não recomendado". Assinale "Não se aplica" se a recomendação não é adequada à situação do(a) seu(sua) filho(a) (ex. a pergunta é sobre a chucha e o(a) seu(sua) filho(a) não usou chucha).

Em que medida segue ou seguiu cada um dos seguintes conselhos nos cuidados ao(à) seu(sua) filho(a)?	**Nunca (1)**	**Poucas vezes (2)**	**Às vezes (3)**	**Muitas vezes (4)**	**Sempre (5)**	**Não recomendado**	**Não se aplica**
1. Encorajar a criança a brincar.	1	2	3	4	5	6	7
2. A partir dos 4 meses, dar ao bebé novos alimentos segundo a ordem que é aconselhada (ex. primeiro a carne e depois o peixe).	1	2	3	4	5	6	7
3. Quando a criança tem sintomas como febre ou cólicas (sintomas ligeiros) dar-lhe os medicamentos que são aconselhados.	1	2	3	4	5	6	7
4. Ensinar a criança a falar corretamente na sua língua materna (ex. contando histórias, lendo livros).	1	2	3	4	5	6	7
5. Evitar dar a crianças com menos de 3 anos objetos pequenos que possam levar a asfixia (ex. berlindes, colares).	1	2	3	4	5	6	7
6. Até aos 12 meses, dar ao bebé apenas um alimento novo por semana.	1	2	3	4	5	6	7
7. Quando a criança tem sintomas ligeiros utilizar outras medidas para além dos medicamentos (ex. banho de água morna para baixar a febre, massagens na barriga para aliviar as cólicas).	1	2	3	4	5	6	7
8. Por volta dos 12 meses, encorajar a criança a andar.	1	2	3	4	5	6	7
9. Proteger as fichas elétricas para evitar choques e queimaduras.	1	2	3	4	5	6	7
10. Até aos 12 meses, dar à criança apenas os alimentos que são aconselhados nas consultas de rotina.	1	2	3	4	5	6	7

Em que medida segue ou seguiu cada um dos seguintes conselhos nos cuidados ao(à) seu(sua) filho(a)?	**Nunca (1)**	**Poucas vezes (2)**	**Às vezes (3)**	**Muitas vezes (4)**	**Sempre (5)**	**Não recomendado**	**Não se aplica**
11. Ir com a criança a outro médico ou serviço de saúde que seja aconselhado (ex. médico especialista).	1	2	3	4	5	6	7
12. Por volta dos 15 meses, ensinar à criança hábitos de sono (ex. ir para a cama cedo ou deitar-se às mesmas horas todos os dias).	1	2	3	4	5	6	7
13. Afastar o bebé/criança de produtos tóxicos que possa beber ou comer (ex. medicamentos, detergentes).	1	2	3	4	5	6	7
14. Evitar dar leite de vaca à criança antes dos 12 meses.	1	2	3	4	5	6	7
15. Lavar os dentes à criança desde que tem o seu primeiro dente.	1	2	3	4	5	6	7
16. Por volta dos 18 meses, começar o "treino do bacio".	1	2	3	4	5	6	7
17. Em viagens de carro, transportar o bebé/criança numa cadeirinha adequada à sua idade ou tamanho.	1	2	3	4	5	6	7
18. A partir dos 12 meses, dar à criança refeições parecidas com as da família.	1	2	3	4	5	6	7
19. Por volta dos 2 anos, encorajar a criança a deixar de usar chucha.	1	2	3	4	5	6	7
20. Evitar dar à criança alimentos/bebidas com muito sal, açúcar ou gorduras.	1	2	3	4	5	6	7

O seu filho fez todas as vacinas que estão recomendadas no Plano Nacional de Vacinação (Boletim de Vacinas)?

- ❍ Sim
- ❍ Não

Se respondeu "não" à pergunta anterior:

a) Qual(ais) a(s) vacinas que o(a) seu(sua) filho(a) não fez?

_____

O seu filho fez outras vacinas para além das recomendadas no Plano Nacional de Vacinação (Boletim de Vacinas)?

- ❍ Sim
- ❍ Não

Se respondeu "sim" à pergunta anterior:

a) Que outra(s) vacina(s) é que o(a) seu(sua) filho(a) fez?

_____

APPENDIX C – Data collection protocol from Study 3

Instruções

O Centro de Investigação e Intervenção Social do ISCTE-Instituto Universitário de Lisboa está a realizar um **estudo sobreas consultas de rotina das crianças**, que acontecem habitualmente nos Centros de Saúde/Unidades de Saúde Familiar (USF) ou em serviços de saúde privados (ex. pediatras particulares). Pretende conhecer a experiência dos cuidadores nessas consultas e sobretudo o **seguimento dos conselhos** que são dados nas mesmas.

Convidamos os **pais ou mães de crianças com idades entre os 2 e os 6 anos, e que costumam ir com elas às consultas de rotina**, a preencherem um breve questionário (+/- 15 minutos). **Não existem respostas certas nem erradas**, e a sua opinião pessoal e sincera é muito importante para nós.

A sua **participação** no estudo é **livre e voluntária**, podendo interrompê-la a qualquer momento, caso sinta vontade de o fazer. Os **dados** recolhidos são **anónimos e confidenciais**, e **serão utilizados apenas para fins de investigação**.

Muito obrigada pela sua colaboração. Para mais informações sobre este estudo poderá contactar a investigadora Susana Mourão (email: Susana_Sofia_Mourao@iscte.pt).

Declaro ter percebido os objetivos do estudo e aceito participar no questionário.

Sim ☐ Não ☐

1ª Parte

Existe um conjunto de conselhos que podem ser dados aos pais durante as **consultas de rotina das crianças e/ou através de materiais escritos** (ex. boletim de saúde infantil, folhetos). O grau em que os pais seguem esses conselhos pode ser muito variável, por vários motivos: ser difícil integrá-los nos hábitos da família; serem diferentes dos que são dados por outros profissionais de saúde, familiares ou amigos.

Assim, **gostaríamos de saber em que medida segue os conselhos dados nas consultas de rotina nos cuidados ao seu filho**. Caso tenha mais do que um filho com idades entre os 2 e os 6 anos, considere o que for mais velho.

Assinale o número da escala que melhor **carateriza o grau em que segue ou seguiu cada um dos conselhos apresentados abaixo**. Se o conselho nunca lhe foi dado, na consulta ou por escrito, assinale "Não recomendado". Assinale "Não se aplica" se a recomendação não é adequada à situação do seu filho (ex. a pergunta é sobre amamentação e o seu filho não mamou).

Em que medida segue ou seguiu cada um dos seguintes conselhos nos cuidados ao seu filho?	**Nunca**	**Poucas vezes**	**Às vezes**	**Muitas vezes**	**Sempre**	**Não recomendado**	**Não se aplica**
1-Dar de mamar até aos 4 meses de idade, sem dar outro tipo de comida ou água.	1	2	3	4	5		
2-Evitar cobrir o cordão umbilical com a fralda, ligaduras ou pensos.	1	2	3	4	5		
3-Encorajar a criança a brincar.	1	2	3	4	5		
4-Evitar deixar o bebé/criança sozinho em cima de locais altos (ex. sofá, cama sem grades, escadas, janelas).	1	2	3	4	5		
5-A partir dos 4 meses, dar ao bebé novos alimentos segundo a ordem que é aconselhada (ex. primeiro a carne e depois o peixe).	1	2	3	4	5		
6-Quando a criança tem sintomas como febre ou cólicas (sintomas ligeiros) dar-lhe os medicamentos que são aconselhados.	1	2	3	4	5		

Em que medida segue ou seguiu cada um dos seguintes conselhos nos cuidados ao seu filho?	**Nunca**	**Poucas vezes**	**Às vezes**	**Muitas vezes**	**Sempre**	**Não recomendado**	**Não se aplica**
7-Ensinar a criança a falar corretamente na sua língua materna (ex. contando histórias, lendo livros).	1	2	3	4	5		
8-Evitar dar a crianças com menos de 3 anos objectos pequenos que possam levar a asfixia (ex. berlindes, colares).	1	2	3	4	5		
9-Até aos 12 meses, dar ao bebé apenas um alimento novo por semana.	1	2	3	4	5		
10-Quando a criança tem sintomas ligeiros utilizar outras medidas para além dos medicamentos (ex. banho de água morna para baixar a febre, massagens na barriga para aliviar as cólicas).	1	2	3	4	5		
11-Por volta dos 12 meses, encorajar a criança a andar.	1	2	3	4	5		
12-Proteger as fichas elétricas para evitar choques e queimaduras.	1	2	3	4	5		
13-Até aos 12 meses, dar à criança apenas os alimentos que são aconselhados nas consultas de rotina.	1	2	3	4	5		
14-Ir com a criança a outro médico ou serviço de saúde que seja aconselhado (ex. médico especialista).	1	2	3	4	5		
15- Por volta dos 15 meses, ensinar à criança hábitos de sono (ex. ir para a cama cedo ou deitar-se às mesmas horas todos os dias).	1	2	3	4	5		
16-Afastar o bebé/criança de produtos tóxicos que possa beber ou comer (ex. medicamentos, detergentes).	1	2	3	4	5		
17-Evitar dar leite de vaca à criança antes dos 12 meses.	1	2	3	4	5		
18-Lavar os dentes à criança desde que tem o seu primeiro dente.	1	2	3	4	5		
19-Por volta dos 18 meses, começar o "treino do bacio".	1	2	3	4	5		
20-Em viagens de carro, transportar o bebé/criança numa cadeirinha adequada à sua idade ou tamanho.	1	2	3	4	5		
21-A partir dos 12 meses, dar à criança refeições parecidas com as da família.	1	2	3	4	5		
22-Por volta dos 2 anos, encorajar a criança a deixar de usar chucha.	1	2	3	4	5		
23-Evitar dar à criança alimentos/bebidas com muito sal, açúcar ou gorduras.	1	2	3	4	5		

O seu filho fez todas as vacinas que estão recomendadas no Plano Nacional de Vacinação (Boletim de Vacinas)?

Sim ☐ Não ☐ Se não, quais? _____

O seu filho fez outras vacinas para além das recomendadas no Plano Nacional de Vacinação (Boletim de Vacinas)?

Sim ☐ Não ☐ Se sim, quais? _____

2ª Parte

Pedimos-lhe agora que responda a algumas perguntas relacionadas com a sua **experiência, em geral, nas consultas de rotina do seu filho**.

Local das consultas de rotina (se for o caso, pode assinalar mais do que uma opção)**:**

Centro de Saúde ☐ Unidade de Saúde Familiar (USF) ☐ Pediatra/Clínica Privada ☐
Outro ☐ Qual? _____

No caso de ir a <u>mais do que um local</u>, onde vai mais regularmente?

_____

Quantas vezes foi às consultas de rotina desde que o seu filho nasceu? ____ vezes

Costuma ler as recomendações escritas do Boletim de Saúde Infantil do seu filho?

Nunca ☐ Poucas vezes ☐ Às vezes ☐ Muitas vezes ☐ Sempre ☐

Em seguida, pedimos-lhe que pense no **local onde vai às consultas de rotina com o seu filho e na qualidade dos cuidados que lhe são prestados nesse local.** No caso de ir a mais do que um local, considere aquele que utiliza mais regularmente. **Em seguida, assinale com uma cruz (X) a resposta** que considerar **mais adequada.**

Que avaliação faz do seu médico de família/pediatra nos últimos 6 meses em relação a:	 **Excelente**				 **Mau**	**Não se aplica**
1 Fazê-lo/a sentir que tem tempo durante a consulta	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
2 Interesse mostrado pela sua situação pessoal	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
3 Facilidade com que se sentiu à vontade para lhe contar os seus problemas	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
4 Forma como foi envolvido/a nas decisões sobre os cuidados que o médico lhe prestou	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
5 Forma como o médico o/a ouviu	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
6 Confidencialidade da informação sobre o seu processo	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
7 Forma como lhe foi prestado alívio rápido dos seus sintomas	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
8 Ajuda que recebeu para se sentir suficientemente bem para desempenhar as suas tarefas diárias	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
9 Atenção dispensada aos seus problemas	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
10 Exame clínico feito pelo médico	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6

Que avaliação faz do seu médico de família/pediatra nos últimos 6 meses em relação a:	 **Excelente**				 **Mau**	**Não se aplica**
11 Oferta de serviços de prevenção de doenças (por exemplo, rastreio, check-ups e vacinas)	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
12 Explicação dos objetivos dos exames, dos testes e dos tratamentos	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
13 Forma como foi suficientemente informado/a sobre os seus sintomas e a sua doença	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
14 Ajuda que recebeu para enfrentar os problemas emocionais relacionados com o seu estado de saúde	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
15 Apoio que recebeu para compreender porque é importante seguir os conselhos do seu médico	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
16 Conhecimento sobre o que foi feito e dito em anteriores contactos no Centro de Saúde/Clínica	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
17 Preparação sobre o que esperar de especialistas, dos cuidados hospitalares ou outros prestadores de cuidados	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
18 A competência, cortesia e carinho do pessoal médico	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6

Que avaliação faz do local onde faz as consultas de rotina do seu filho nos últimos 6 meses em relação a:	 **Excelente**				 **Mau**	**Não se aplica**
19 Tempo que lhe foi dedicado pelo pessoal de enfermagem	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
20 Forma como foi contactado/a para utilizar os serviços de prevenção de doenças fornecidos pelo Centro de Saúde/Clínica	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6
21 A competência, cortesia e carinho do pessoal de enfermagem	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 6

3ª Parte

Pedimos-lhe agora que responda a algumas perguntas relativas a **dados pessoais e familiares**. Relembramos que todas as suas **respostas são anónimas e confidenciais**, e serão utilizadas apenas para fins de investigação.

Dados Sociodemográficos

Sexo: Feminino ☐ Masculino ☐

Idade: ____ anos

Número de Filhos: ____ filhos | **Idade do filho mais velho:** ____ anos

País onde nasceu: _____ | **Nacionalidade:** _____

No caso de <u>não ter nascido em Portugal</u>, há quantos anos vive no país? ____ anos

No caso de <u>não ter nascido em Portugal</u>, qual a sua situação legal?

Em processo de legalização ☐ Com autorização de residência temporária ☐ Com autorização de residência permanente ☐ Outra ☐ Qual? _____

Estado Civil: Solteiro/a ☐ Casado/a ☐ União de Facto ☐ Divorciado/a ☐ Viúvo/a ☐

Anos de Escolaridade (completos)**:** _____

Situação Profissional: Empregado/a ☐ Desempregado/a ☐ Reformado/a ☐

Profissão: _____

Rendimento mensal do agregado familiar (pessoas com quem vive)**:**

Menos de 500€ ☐ Entre 500€ e 750€ ☐ Entre 750€ e 1000€ ☐ Entre 1000€ e 1500€ ☐ Mais de 1500€ ☐

Muito obrigada pela sua colaboração!

APPENDIX D – Data collection protocol from Study 4

INSTRUÇÕES E CONSENTIMENTO INFORMADO

O Centro de Investigação e Intervenção Social do ISCTE-Instituto Universitário de Lisboa está a realizar um **estudo sobre as consultas de rotina das crianças**, que acontecem habitualmente nos Centros de Saúde/Unidades de Saúde Familiar (USF) ou em serviços de saúde privados (ex. pediatras particulares). Pretende conhecer a **experiência que famílias imigrantes Brasileiras em Portugal têm nessas consultas**. O estudo faz parte de um projeto de Doutoramento em Psicologia, financiado pela Fundação para Ciência e Tecnologia (FCT; SFRH/BD/96783/2013).

Convidamos os **pais ou mães de origem Brasileira, com filhos(as) com idades entre os 2 e os 6 anos**, a preencherem o questionário que se segue e que durará cerca de 20 minutos. O questionário deverá ser preenchido por aquele que vai mais vezes com a criança às consultas de rotina (pai ou mãe). Caso tenha **mais do que um(a) filho(a) com a idade indicada**, por favor, **responda em relação ao seu(a) filho(a) mais velho(a)**.

Não existem respostas certas nem erradas, e a sua opinião pessoal e sincera é muito importante para nós. Não queremos avaliar os cuidados de saúde que o(a) seu(sua) filho(a) tem recebido, mas sim conhecer a sua experiência nas consultas de rotina das crianças em Portugal. **Não existem riscos** associados à sua participação no estudo e ao responder, a todas ou quase todas as perguntas, habilita-se a ganhar um dos 6 vouchers Sonae de 25€ que serão sorteados.

A sua **participação** no estudo é **livre e voluntária**: pode escolher participar ou não participar. Se escolher participar, pode interromper a sua participação em qualquer momento, caso sinta vontade de o fazer, e sem ter que se justificar. Os **dados** recolhidos são **anónimos e confidenciais**, e serão utilizados apenas para fins de investigação. As suas respostas não vão ser analisadas individualmente e não permitirão identificá-lo(a).

Caso tenha alguma dúvida e/ou queira fazer algum comentário sobre o estudo poderá **contactar a investigadora Susana Mourão** (email: Susana_Sofia_Mourao@iscte-iul.pt). Muito obrigada, desde já, pela sua participação.

Se tem **mais do que 18 anos** e percebeu as informações apresentadas acima, indique por favor se **aceita participar no estudo**:

- ❍ Sim
- ❍ Não

Nome: _____
Data: _____
Assinatura: _____

1ª PARTE

As perguntas que se seguem são sobre dados familiares e pessoais, e sobre a sua experiência em Portugal.

DADOS SOBRE O SEU(SUA) FILHO(A)

Idade (por favor indique o número de anos)**:** _____ anos

Naturalidade da mãe (país onde nasceu)**:** _____
Nacionalidade da mãe: _____
Naturalidade do pai (país onde nasceu)**:** _____
Nacionalidade do pai: _____

Constituição do agregado familiar (pessoas com quem vive)**:**
_____

Rendimento mensal do agregado familiar (pessoas com quem vive)**:**

- ❍ Menos de 500€
- ❍ 500€ a 1000€
- ❍ 1000€ a 1500€
- ❍ 1500€ a 2000€
- ❍ Mais de 2000€

DADOS SOBRE SI

Grau de parentesco com a criança:

- ❍ Mãe
- ❍ Pai

Idade: _____ anos

Número de filhos: _____

Escolaridade (por favor indique o número de anos completos)**:** _____ anos

Profissão: _____

Situação profissional:

- ❍ Empregado(a)
- ❍ Desempregado(a)

Com qual destes grupos mais se identifica (escolha 1 opção)**:**

- ❍ Brasileiros
- ❍ Portugueses de origem brasileira
- ❍ Outro. Qual? _____

Há quanto tempo vive em Portugal?

- ❍ 1 ano ou menos
- ❍ 2 a 3 anos
- ❍ 4 a 5 anos
- ❍ Mais de 5 anos

Qual a sua situação em Portugal?

- ❍ Em processo de legalização
- ❍ Autorização de residência temporária
- ❍ Autorização de residência permanente
- ❍ Nacionalidade portuguesa/dupla nacionalidade
- ❍ Outra. Qual? _____

Quanto concorda com cada uma das seguintes frases?	**Discordo totalmente (1)**	**Discordo (2)**	**Não concordo nem discordo (3)**	**Concordo (4)**	**Concordo totalmente (5)**
1. Eu acho que é importante que os Brasileiros em Portugal mantenham a sua cultura.	1	2	3	4	5
2. Eu acho que os Brasileiros em Portugal devem manter a sua própria religião, linguagem e vestuário.	1	2	3	4	5
3. Eu acho que é importante que os Brasileiros em Portugal mantenham a sua própria forma de vida.	1	2	3	4	5
4. Eu acho que é importante que os Brasileiros em Portugal tenham amigos Portugueses.	1	2	3	4	5
5. Eu acho que é importante que os Brasileiros em Portugal também passem algum tempo com os Portugueses.	1	2	3	4	5
6. Acredito que os Portugueses não se importam que os Brasileiros mantenham a sua própria cultura.	1	2	3	4	5
7. Acredito que os Portugueses não se importam que os Brasileiros mantenham a sua religião, linguagem e vestuário.	1	2	3	4	5
8. Acredito que os Portugueses não se importam que os Brasileiros mantenham a sua própria forma de vida.	1	2	3	4	5
9. Acredito que os Portugueses acham que é importante que os Brasileiros tenham amigos Portugueses.	1	2	3	4	5
10. Acredito que os Portugueses acham que é importante que os Brasileiros também passem tempo com os Portugueses.	1	2	3	4	5

2ª PARTE

As perguntas que se seguem são sobre a sua experiência nas consultas de rotina do(a) seu(sua) filho(a). Relembre-se que, caso tenha mais do que um(a) filho(a) com 2 a 6 anos de idade, deverá responder em relação ao(à) que for mais velho(a).

Local das consultas (pode assinalar mais do que 1 opção)**:**

- ❍ Centro de saúde
- ❍ Unidade de saúde familiar (USF)
- ❍ Pediatra/clínica privada
- ❍ Outro. Qual? _____

No caso de ir a mais do que um local, onde vai mais regularmente? _____

Quantas vezes foi às consultas de rotina desde que o seu(sua) filho(a) nasceu? ____

Costuma ler os conselhos escritos do livro de saúde infantil do seu filho(a)?

- ❍ Nunca
- ❍ Poucas vezes
- ❍ Às vezes
- ❍ Muitas vezes
- ❍ Sempre

Que avaliação faz do <u>médico de família/pediatra que habitualmente segue o(a) seu(sua) filho(a)</u> em relação a:	 **Excelente (5)**	 **(4)**	 **(3)**	 **(2)**	 **Mau (1)**	**Não se aplica (6)**
1. Fazê-lo sentir que tem tempo durante a consulta.	5	4	3	2	1	6
2. Interesse mostrado pela situação do(a) seu(sua) filho(a).	5	4	3	2	1	6
3. Facilidade com que se sentiu à vontade para lhe contar os problemas do(a) seu(sua) filho(a).	5	4	3	2	1	6
4. Forma como foi envolvido(a) nas decisões sobre os cuidados que o médico prestou ao(à) seu(sua) filho(a).	5	4	3	2	1	6
5. Forma como o médico o(a) ouviu.	5	4	3	2	1	6
6. Confidencialidade da informação sobre o processo do(a) seu(sua) filho(a).	5	4	3	2	1	6
7. Forma como foi prestado alívio rápido dos sintomas do(a) seu(sua) filho(a).	5	4	3	2	1	6
8. Ajuda que recebeu para se sentir suficientemente bem para desempenhar as tarefas diárias do(a) seu(sua) filho(a).	5	4	3	2	1	6
9. Atenção dispensada aos problemas do(a) seu(sua) filho(a).	5	4	3	2	1	6
10. Exame clínico feito pelo médico.	5	4	3	2	1	6
11. Oferta de serviços de prevenção de doenças (por exemplo, rastreio, check-ups e vacinas).	5	4	3	2	1	6
12. Explicação dos objetivos dos exames, dos testes e dos tratamentos.	5	4	3	2	1	6
13. Forma como foi suficientemente informado(a) sobre os sintomas e a doença do(a) seu(sua) filho(a).	5	4	3	2	1	6

Que avaliação faz do médico de família/pediatra que habitualmente segue o(a) seu(sua) filho(a) em relação a:	 **Excelente (5)**	**(4)**	**(3)**	**(2)**	 **Mau (1)**	**Não se aplica (6)**
14. Ajuda que recebeu para enfrentar os problemas emocionais relacionados com o estado de saúde do(a) seu(sua) filho(a).	5	4	3	2	1	6
15. Apoio que recebeu para compreender porque é importante seguir os conselhos do seu médico.	5	4	3	2	1	6
16. Conhecimento sobre o que foi feito e dito em anteriores contactos no centro de saúde/clínica.	5	4	3	2	1	6
17. Preparação sobre o que esperar de especialistas, dos cuidados hospitalares ou outros prestadores de cuidados.	5	4	3	2	1	6
18. A competência, cortesia e carinho do pessoal médico.	5	4	3	2	1	6

Que avaliação faz do local das consultas de rotina do(a) seu(sua) filho(a) em relação a:	 **Excelente (5)**	**(4)**	**(3)**	**(2)**	 **Mau (1)**	**Não se aplica (6)**
19. Tempo que lhe foi dedicado pelo pessoal de enfermagem.	5	4	3	2	1	6
20. Forma como foi contactado(a) para utilizar os serviços de prevenção de doenças fornecidos pelo centro de saúde/clínica.	5	4	3	2	1	6
21. A competência, cortesia e carinho do pessoal de enfermagem.	5	4	3	2	1	6

Quando pensa no médico de família/pediatra que habitualmente segue o(a) seu(sua) filho(a), quanto concorda com cada uma das seguintes frases?	**Discordo totalmente (1)**	**Discordo (2)**	**Não concordo nem discordo (3)**	**Concordo (4)**	**Concordo totalmente (5)**
1. Eu duvido que o médico se interesse realmente pelo(a) meu(minha) filho(a) como pessoa.	1	2	3	4	5
2. Habitualmente, o médico tem em consideração as necessidades do(a) meu(minha) filho(a) e coloca-as em primeiro plano.	1	2	3	4	5
3. Eu confio tanto no médico que tento sempre seguir os seus conselhos.	1	2	3	4	5
4. Se o médico me diz alguma coisa, eu acredito que seja verdade.	1	2	3	4	5
5. Por vezes não confio na opinião do médico e gostaria de uma segunda opinião.	1	2	3	4	5
6. Eu confio nos juízos do médico sobre os cuidados de saúde do(a) meu(minha) filho(a).	1	2	3	4	5
7. Eu sinto que o médico não faz tudo o que está ao seu alcance pelos cuidados médicos do(a) meu(minha) filho(a).	1	2	3	4	5
8. Eu acredito que o médico coloca as necessidades médicas do(a) meu(minha) filho(a) acima de tudo quando está a tratar os seus problemas de saúde.	1	2	3	4	5
9. O médico é um especialista em tratar problemas médicos como os do(a) meu(minha) filho(a).	1	2	3	4	5
10. Eu confio que o médico me conte se algum erro foi cometido durante o tratamento do(a) meu(minha) filho(a).	1	2	3	4	5
11. Algumas vezes preocupo-me que o médico não mantenha as informações discutidas nas nossas conversas confidenciais.	1	2	3	4	5

3ª PARTE

As perguntas que se seguem são sobre cuidados que presta ao(à) seu(sua) filho(a) e sobre alguns dos conselhos que podem ser dados nas consultas de rotina das crianças e/ou **através de materiais escritos** (ex. boletim de saúde infantil, folhetos). Mais uma vez, se tem mais do que um(a) filho(a) com 2 a 6 anos de idade, considere o(a) que for mais velho(a).

Quando pensa nos <u>medicamentos que são aconselhados nas consultas de rotina do(a) seu(sua) filho(a) para aliviar sintomas comuns (ex. febre, cólicas, tosse)</u>, quanto concorda com cada uma das seguintes frases?	**Discordo totalmente (1)**	**Discordo (2)**	**Não concordo nem discordo (3)**	**Concordo (4)**	**Concordo totalmente (5)**
1. Preocupa-me que o(a) meu(minha) filho(a) tenha que tomar estes medicamentos.	1	2	3	4	5
2. Às vezes, preocupo-me com os efeitos a longo prazo destes medicamentos.	1	2	3	4	5
3. Estes medicamentos são um mistério para mim.	1	2	3	4	5
4. Estes medicamentos perturbam a vida do(a) meu(minha) filho(a).	1	2	3	4	5
5. Às vezes, preocupo-me que o(a) meu(minha) filho(a) fique demasiado dependente destes medicamentos.	1	2	3	4	5
6. Estes medicamentos dão desagradáveis efeitos secundários ao(à) meu(minha) filho(a).	1	2	3	4	5

Usa ou usou algum tratamento caseiro (ex. chás, ervas) para aliviar sintomas comuns do(a) seu(sua) filho(a) (ex. febre, cólicas, tosse)?

- ❍ Sim
- ❍ Não

Se respondeu "sim" à pergunta anterior:

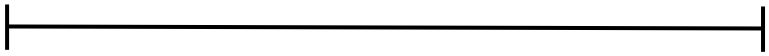
a) Que tratamento(s) caseiro(s) usa ou usou? _____
b) Para alívio de que sintoma(s)? _____

Leia as frases a seguir apresentadas. Em seguida, coloque uma cruz (x) no local da linha que melhor caracteriza a sua opinião sobre cada uma dessas frases.

1-Os alimentos que são aconselhados nas consultas de rotina em Portugal são iguais aos que as crianças tradicionalmente comem no Brasil.

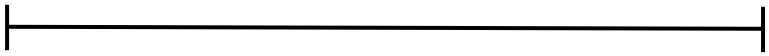
0=Nada iguais 10=Completamente iguais

2-A ordem de introdução dos alimentos na dieta dos bebés que é aconselhada nas consultas de rotina em Portugal (ex. primeiro a carne, depois o peixe) é igual ao que habitualmente se segue no Brasil?



0=Nada igual 10=Completamente igual

3-As medidas aconselhadas nas consultas de rotina em Portugal para aliviar sintomas comuns (ex. febre, cólicas, tosse) são iguais às que tradicionalmente se utilizam no Brasil.



0=Nada iguais 10=Completamente iguais

4ª PARTE

As perguntas que se seguem são sobre o seguimento dos conselhos dados nas consultas de rotina do(a) seu(sua) filho(a). O grau em que os pais seguem esses conselhos pode ser muito variável, por vários motivos: ser difícil integrá-los nos hábitos da família; serem diferentes dos que são dados por outros profissionais de saúde, familiares ou amigos. Assim, **gostaríamos de saber em que medida segue os conselhos dados nas consultas de rotina nos cuidados ao(à) seu(sua) filho(a).** Caso tenha mais do que um(a) filho(a) com 2 a 6 anos de idade, considere o(a) que for mais velho(a).

Assinale o número da escala que melhor **carateriza o grau em que segue ou seguiu cada um dos conselhos apresentados abaixo**. Se o conselho nunca lhe foi dado, na consulta ou por escrito, assinale "Não recomendado". Assinale "Não se aplica" se a recomendação não é adequada à situação do(a) seu(sua) filho(a) (ex. a pergunta é sobre a chucha e o(a) seu(sua) filho(a) não usou chucha).

Em que medida <u>segue ou seguiu cada um dos seguintes conselhos</u> nos cuidados ao(à) seu(sua) filho(a)?	**Nunca (1)**	**Poucas vezes (2)**	**Às vezes (3)**	**Muitas vezes (4)**	**Sempre (5)**	**Não recomendado**	**Não se aplica**
1. Encorajar a criança a brincar.	1	2	3	4	5	6	7
2. A partir dos 4 meses, dar ao bebé novos alimentos segundo a ordem que é aconselhada (ex. primeiro a carne e depois o peixe).	1	2	3	4	5	6	7
3. Quando a criança tem sintomas como febre ou cólicas (sintomas ligeiros) dar-lhe os medicamentos que são aconselhados.	1	2	3	4	5	6	7
4. Ensinar a criança a falar corretamente na sua língua materna (ex. contando histórias, lendo livros).	1	2	3	4	5	6	7
5. Evitar dar a crianças com menos de 3 anos objetos pequenos que possam levar a asfixia (ex. berlindes, colares).	1	2	3	4	5	6	7
6. Até aos 12 meses, dar ao bebé apenas um alimento novo por semana.	1	2	3	4	5	6	7
7. Quando a criança tem sintomas ligeiros utilizar outras medidas para além dos medicamentos (ex. banho de água morna para baixar a febre, massagens na barriga para aliviar as cólicas).	1	2	3	4	5	6	7
8. Por volta dos 12 meses, encorajar a criança a andar.	1	2	3	4	5	6	7
9. Proteger as fichas elétricas para evitar choques e queimaduras.	1	2	3	4	5	6	7
10. Até aos 12 meses, dar à criança apenas os alimentos que são aconselhados nas consultas de rotina.	1	2	3	4	5	6	7

Em que medida <u>segue ou seguiu cada um dos seguintes conselhos</u> nos cuidados ao(à) seu(sua) filho(a)?	**Nunca (1)**	**Poucas vezes (2)**	**Às vezes (3)**	**Muitas vezes (4)**	**Sempre (5)**	**Não recomendado**	**Não se aplica**
11. Ir com a criança a outro médico ou serviço de saúde que seja aconselhado (ex. médico especialista).	1	2	3	4	5	6	7
12. Por volta dos 15 meses, ensinar à criança hábitos de sono (ex. ir para a cama cedo ou deitar-se às mesmas horas todos os dias).	1	2	3	4	5	6	7
13. Afastar o bebé/criança de produtos tóxicos que possa beber ou comer (ex. medicamentos, detergentes).	1	2	3	4	5	6	7
14. Evitar dar leite de vaca à criança antes dos 12 meses.	1	2	3	4	5	6	7
15. Lavar os dentes à criança desde que tem o seu primeiro dente.	1	2	3	4	5	6	7
16. Por volta dos 18 meses, começar o "treino do bacio".	1	2	3	4	5	6	7
17. Em viagens de carro, transportar o bebé/criança numa cadeirinha adequada à sua idade ou tamanho.	1	2	3	4	5	6	7
18. A partir dos 12 meses, dar à criança refeições parecidas com as da família.	1	2	3	4	5	6	7
19. Por volta dos 2 anos, encorajar a criança a deixar de usar chucha.	1	2	3	4	5	6	7
20. Evitar dar à criança alimentos/bebidas com muito sal, açúcar ou gorduras.	1	2	3	4	5	6	7

O seu filho fez todas as vacinas que estão recomendadas no Plano Nacional de Vacinação (Boletim de Vacinas)?

- ❍ Sim
- ❍ Não

Se respondeu "não" à pergunta anterior:

a) Qual(ais) a(s) vacinas que o(a) seu(sua) filho(a) não fez?

_____

O seu filho fez outras vacinas para além das recomendadas no Plano Nacional de Vacinação (Boletim de Vacinas)?

- ❍ Sim
- ❍ Não

Se respondeu "sim" à pergunta anterior:

a) Que outra(s) vacina(s) é que o(a) seu(sua) filho(a) fez?

_____

AGRADECIMENTO

Muito obrigada por ter participado neste questionário. Tal como apresentado no início, este estudo pretende **conhecer a experiência de famílias imigrantes Brasileiras em Portugal nas consultas de rotina das crianças** e, mais especificamente, as atitudes dessas famílias face aos conselhos que são dados nas consultas.

Lembramos que pode enviar **email para Susana_Sofia_Mourao@iscte-iul.pt**, caso tenha alguma dúvida ou comentário a fazer, e ainda se quiser receber informação sobre os principais resultados do estudo.

Mais uma vez, muito obrigada pela sua colaboração.

Caso queira participar no **sorteio dos vouchers Sonae**, indique o seu **email abaixo**. Garantimos que só o iremos utilizar para este fim e não vamos associá-lo às respostas do questionário.

Autoriza que esse email seja utilizado para **receber informação sobre outros estudos**:

- ❍ Sim
- ❍ Não