UNIVERSIDADE D
COIMBRA

Joana Sofia Varela de Carvalho

Famílias no mundo digital:
Padrões de utilização, ciclo de vida e dinâmica familiar

Tese no âmbito do Programa Interuniversitário de Doutoramento em Psicologia, área de especialização em Psicologia Clínica - área temática: Psicologia da Família e Intervenção Familiar, da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra, em associação com a Faculdade de Psicologia da Universidade de Lisboa,
orientada pelos Professores Doutores Ana Paula Pais Rodrigues da Fonseca Relvas, Rita Mafalda Costa Francisco e Gonzalo Bacigalupe e apresentada à Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.

Maio de 2022

Faculdade de Psicologia e de Ciências da Educação
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Título
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Declaração

De acordo com o artigo 17.º do Regulamento do Programa Interuniversitário de Doutoramento em Psicologia, área de especialização em Psicologia Clínica, área temática: Psicologia da Família e Intervenção Familiar, em regime de associação entre as Universidades de Coimbra e de Lisboa (de 19 de setembro de 2008), esta dissertação engloba um capítulo de um *ebook* e artigos que estão publicadas ou que foram submetidas para publicação em revistas nacionais e internacionais indexadas, em colaboração com outros autores. A autora declara que foi responsável pela recolha de dados, análise e interpretação dos resultados, assim como pela redação, submissão e revisão de todo o material enviado para publicação. Os artigos que constam neste trabalho são as versões enviadas, publicadas e/ou aceites para publicação. No caso destas últimas, é feita referência à ligação para a fonte de publicação onde se encontra a versão final publicada.

Joana Carvalho

Maio de 2022

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Dedico este trabalho a todos os que participaram nele e às famílias que com ele poderão beneficiar.

Resumo

As tecnologias digitais têm sido progressivamente incorporadas nas nossas vidas quotidianas. Os avanços tecnológicos e a integração destas no contexto familiar fizeram surgir novos cenários de interação e alteraram os modelos relacionais familiares, criando mudanças sem precedentes nas dinâmicas familiares.

A influência da utilização tecnológica na dinâmica familiar, apesar de ser um tema atual e um tópico de estudo relevante, sobretudo face ao aumento de situações problemáticas resultantes da utilização destas no contexto familiar, revela na literatura uma ambivalência de resultados e foca-se em etapas específicas do ciclo de vida da família. Contribuindo para o conhecimento científico e prática clínica, propusemo-nos caracterizar a utilização das tecnologias digitais pelas famílias portuguesas e analisar a sua relação com a dinâmica familiar em distintas etapas do ciclo vital familiar, através de quatro estudos sequenciais.

No primeiro estudo, começamos por perceber o estado da arte para termos um referencial teórico sobre a influência das tecnologias digitais no funcionamento familiar, refletimos sobre as suas limitações e possíveis linhas de investigação futura. Seguiu-se a elaboração do projeto de investigação que marcou, globalmente, o ponto de partida deste trabalho.

No segundo estudo, com uma amostra de 950 indivíduos de nacionalidade portuguesa, construímos e validámos um instrumento multidimensional sobre a utilização das tecnologias digitais e o seu impacto a nível familiar, o Questionário de Utilização das Tecnologias de Informação e da Comunicação (QUTIC). Este permitiu-nos operacionalizar a utilização das tecnologias em várias dimensões e caracterizar a utilização destas em três padrões de utilização individual: os Não-utilizadores, os Utilizadores avançados, e os Utilizadores instrumentais e de entretenimento/sociais. Foram identificados os principais problemas familiares face à utilização das tecnologias e aferida uma escala de atitudes relativa à perceção global do impacto destas tecnologias no contexto familiar. Os resultados desta escala em torno da média sugerem um equilíbrio na perceção de influências positivas e negativas das tecnologias na vida

das famílias, ultrapassando a tradicional visão dicotómica que acentua os riscos face aos benefícios da sua utilização.

O terceiro e quarto estudos englobaram a aplicação de um protocolo de autorresposta integrando instrumentos que permitiram avaliar diversas variáveis: o funcionamento familiar, a qualidade de vida familiar, os rituais familiares, o número de tecnologias utilizadas, o tipo de tecnologias utilizadas, a frequência de utilização das tecnologias, o contexto de utilização das tecnologias, a finalidade de utilização das tecnologias, os problemas familiares decorrentes da utilização das tecnologias e o impacto global da utilização das tecnologias no contexto familiar. O terceiro estudo incidiu sobre a análise da influência das tecnologias digitais no funcionamento das famílias, em diversas etapas do ciclo de vida familiar. Assim, numa amostra de 564 indivíduos, verificamos que a utilização da tecnologia varia consoante estas etapas e que quanto maior o número de tecnologias usadas diariamente, mais favoráveis são as percepções sobre o funcionamento familiar. Isto foi notório nos casais recém-formados e nas famílias com filhos pequenos que se revelaram os maiores utilizadores diários de tecnologias. Mas, a interação entre as tecnologias digitais e o funcionamento familiar não se revelou moderada por estas etapas.

No quarto estudo, recorrendo a uma amostra de 825 indivíduos da população geral portuguesa, analisámos o impacto da utilização das tecnologias digitais na dinâmica familiar (avaliada nas dimensões do funcionamento familiar, qualidade de vida familiar e rituais familiares), e adicionalmente, construímos um modelo sistémico compreensivo desta interação. Os resultados mostraram que um maior número de situações problemáticas vividas no contexto familiar face à utilização das tecnologias está associado a perceções da qualidade de vida e do funcionamento familiar menos satisfatórias.

Este trabalho permitiu conhecer melhor quem são os utilizadores das tecnologias digitais em Portugal, os seus perfis de utilização tecnológica e a perceção que têm do impacto que estas utilizações têm no contexto familiar, nas etapas do ciclo de vida das famílias e em função dos padrões exibidos. Espera-se que os resultados possam servir de inspiração em futuras investigações e que possam ser aplicados na prática clínica, não só na identificação de situações familiares problemáticas, mas sobretudo na

implementação de estratégias de prevenção e intervenção mais ajustadas aos desafios que a utilização das tecnologias digitais coloca continuamente às nossas famílias.

Palavras-chave: Tecnologias digitais; Padrões de utilização tecnológica; Ciclo de vida familiar; Dinâmica familiar.

Abstract

Digital technologies have been progressively incorporated into our daily lives. Technological advances and the integration of these technologies in the family context have created new interaction scenarios and rearranged family relational models, causing unprecedented changes in family dynamics.

The interplay between technology use and family dynamics, despite being a current and relevant topic of study, especially concerning the increased number of problematic situations arising from its use in the family context, is characterized by the ambivalence of the results in the literature, focusing on specific stages of the family's life cycle. To contribute to scientific knowledge and clinical practice, we set out to characterize the use of digital technologies by Portuguese families and analyse their relationship with family dynamics at different stages of the family life cycle, across four sequential studies.

In the first one, we started by perceiving the state of the art to obtain a theoretical framework for the influence of digital technologies on family functioning, we reflected on its limitations and possible future lines of investigation. This was followed by the construction of the research project that globally marked the starting point of this work.

In the second study, using a sample of 950 individuals of Portuguese nationality, we built and validated a multidimensional instrument for the Portuguese population about the use of digital technologies and their impact in the family domain, the Information and Communication Technologies Use Questionnaire (QUTIC). This allowed us to operationalize the use of technologies in various dimensions and characterize their use in three patterns of individual use: Non-users, Advanced users, and Instrumental-Entertainment/Social users. The main family problems arising from the use of digital technologies were also identified, and a scale of attitudes, the global perception of the impact of these technologies in the family context was also measured. The results obtained on this scale around the average suggest a balance in the perception of positive and negative influences of digital technologies on the lives of families, surpassing the traditional dichotomous view that emphasizes the risks in comparison to the benefits of its use.

The third and fourth studies involved the application of a self-response protocol including instruments that allowed the assessment of several variables: the family functioning, the family quality of life, the family rituals, the number of technologies used, the type of technologies used, the frequency of use of the technologies, the context of use of the technologies, the purpose of using the technologies, the family problems arise from the use of technologies and the impact of its use in the family context. The third study focused on the analysis of the influence of digital technologies on the family functioning at different stages of the family life cycle. Thus, in a sample of 564 individuals from families at different stages of the family life cycle, we found that family members' technology use varied across different family life cycle stages, and the higher the number of technologies used daily, the more positive perceptions of family functioning were reported. This was particularly true for new couples and families with young children, considered the greatest daily users of technologies. However, the relationship between technology use and family functioning was not moderated by the family life cycle stage.

In the fourth study, using a sample of 825 individuals, we analysed the impact of the use of digital technologies on family dynamics (assessed in the dimensions of family functioning, quality of family life and family rituals) and additionally, we constructed a comprehensive systemic model of this interaction between digital technologies and family dynamics. Results showed that a higher number of problematic situations experienced in the family context arising from digital technologies use were associated with more problematic family functioning and to reduced family quality of life.

This work enabled a better understanding of who the users of digital technologies in Portugal are, what their profiles of technological use are and the perception they have of the impact that their uses have in the family context, in different family life cycle stages and according to different patterns of technology use. It is hoped that these results can be an inspiration for future investigations and that they can be applied in clinical practice, not only in the identification of problematic family situations, but also in the prevention and intervention strategies which are better adjusted to the challenges that the use of digital technologies continually poses to our families.

Keywords: Digital technologies; Technological patterns of use; Family life cycle; Family dynamics.

Índice geral

Introdução

"Composing a life involves a continual reimagining of the future and reinterpretation of the past to give meaning to the present."

(Mary Bateson, 1990)

Para contar esta história, tenho de recuar vinte anos. Altura pela qual terminei a licenciatura em Psicologia Clínica da Universidade de Coimbra.

Seguiram-se anos de um exercício profissional em diversas instituições, sobretudo, ao serviço de pessoas com patologias aditivas, em situação de sem abrigo, de reclusão penitenciária e de prostituição. Este percurso foi de tal forma marcante, que partilhei algumas das minhas reflexões num trabalho que viria em 2009 a assumir o formato de tese de Mestrado (Ver a família aos quadradinhos: Redundâncias familiares de indivíduos em situação de reclusão).

Paralelamente a este percurso e após uma década de namoro à distância, casava com quem viria a construir outros sonhos. Foi neste contexto, que tive de tomar uma decisão e saí do país. Primeiro Espanha e depois Austrália. Mas o que terá esta história a ver com este trabalho?

Foi em Espanha que a nossa vida de casal recém-formado se transformou numa família mais numerosa, abrindo a nossa janela familiar a outros mundos envolventes. Contudo, a distância geográfica que nos separava da restante família e amigos, fez-nos reinventar na vida quotidiana formas de proximidade, para além das *comemorações especiais* ou *anuais* que muitas vezes justificavam a nossa vinda ao país. De salientar, que passado dez anos de namoro à distância nós já éramos muito bons nisso. Mas com o crescente número de dispositivos tecnológicos e a diversidade de funcionalidades que progressivamente estes integravam, esta tarefa ficou muito mais facilitada. E foi assim que numa noite, *à hora de jantar*, enquanto estávamos sentados à mesa a partilhar virtualmente a refeição com a família alargada através do *tablet*, o tema deste trabalho surgiu.

Naquele dia, *à hora de jantar,* houve vários temas em cima da mesa. Na maioria, provinham de heranças profissionais dos diversos locais onde eu tinha trabalhado. Eram temas que me eram caros e familiares, mas sobre os quais eu dificilmente vislumbrava inovação científica. As tecnologias digitais estavam a fazer emergir uma série de questões novas no seio das famílias e isso fascinou-me. Aliás, isso, foi o que me fez sair

da zona de conforto teórica e investigar toda uma realidade nova para mim. Escolhido o tema, comecei por pesquisar informação sobre as novas tecnologias e sobre os seus impactos na vida das famílias. E de tantas coisas que li sobre estas, muito poucas eram as que incidiam sobre o que eu achava que queria estudar. Os trabalhos desenvolvidos por um Professor nos Estados Unidos eram os que mais se aproximavam do cerne da minha questão de investigação, e isso foi claramente a minha bússola de inspiração teórica inicial. Olhando para trás, recordo-me que não descansei enquanto não o convidei para me ajudar neste trabalho. E de como fiquei feliz quando ele aceitou! Sentia que estava arduamente a desbravar um caminho novo, mas tinha este consolo: alguns dos melhores do mundo estavam-me a orientar nesta travessia. Estava-se assim a começar a trilhar o meu percurso no domínio da investigação.

Confesso que não foi fácil, mas esta experiência permitiu-me perceber o significado que um avanço científico pode realmente ter. E só por isso, na minha ótica, este trabalho já tinha valido a pena. Mas este projeto tinha objetivos mais ambiciosos e que claramente me ultrapassavam.

Anos antes, tinha-me apercebido que para além de gostar de estudar casos isolados e de mergulhar nas singularidades de cada um, me interessava cada vez mais pelas teias de relações invisíveis que ligam as pessoas e os cenários nos quais ocorrem. E se este interesse alicerçou a minha prática clínica antes deste projeto, a possibilidade de colocar em prática aspetos teóricos que investigava, foi fulcral para o enriquecimento deste processo dialético. Teoria e prática num plano de interação complementar entre a reflexão crítica e a ação.

Para triangular esta relação, surgiu a possibilidade de ensino e essa mais-valia que é poder partilhar e receber conhecimento. Situada nesta espiral de interações, esta tese assinala um momento chave deste trajeto, sendo meu desejo que não se esgote em si mesma. Ela é em parte reflexo desta minha história, mas é sobretudo um reconhecimento das histórias de todos os que quiserem participar nela e um legado aos que possam dela beneficiar.

As Tecnologias digitais

"Da Idade da pedra à Era digital"

As tecnologias digitais foram das inovações a que assistimos no decorrer da nossa história com os avanços mais rápidos de sempre e que se expandiram em inúmeros contextos, passando a integrar-se nos hábitos da vida quotidiana de quase metade da população mundial (Hertlein & Twist, 2019; United Nations, 2021). Têm produzido efeitos transversais na economia e na sociedade, que se vieram a refletir em diversas esferas da vida dos indivíduos (Organização para a Cooperação e Desenvolvimento Económico [OCDE], 2019). Com a atual situação de pandemia da COVID-19 e os sucessivos confinamentos decretados, diversas áreas da nossa vivência foram profundamente afetadas, o que conduziu a significativos ajustamentos e mudanças, nomeadamente, ao nível do funcionamento familiar, da parentalidade, da recriação de rituais familiares (Imber-Black, 2020; Santos et al., 2020), bem como da utilização das tecnologias digitais. No que toca a estas últimas, verificou-se não só uma maior frequência da utilização destas, como também a sua utilização passou a integrar um maior leque de finalidades, entre os quais: o regime de teletrabalho, as aprendizagens através de portais educativos, as compras online, o acesso a serviços governamentais através da internet, e a criação de comunidades virtuais de interação através de redes e plataformas digitais (Instituto Nacional de Estatística [INE], 2020; Maeneja & Abreu, 2020; Santos et al., 2020).

O termo transformações digitais engloba uma variedade de efeitos tecnológicos, económicos e sociais decorrentes dos processos de digitação e digitalização. Estes, referem-se, respetivamente, à conversão de dados (e.g., áudio, vídeo, texto) num código binário de dígitos (zero e um) suscetível de ser legível por uma máquina, e à utilização desses dados digitais, como a sua interconexão com outros, resultando em novas atividades ou em mudanças nas existentes (OCDE, 2019).

Do ponto de vista histórico, a Revolução digital é considerada a Terceira Revolução Industrial e marca o início da Era do Conhecimento. Antes desta, a Primeira Revolução Industrial, que marcou o período entre 1760 e 1820-1840, ficou marcada pela transição dos métodos de produção artesanais para os maquinais, tendo sido fortemente

impulsionada pela energia a vapor. A Segunda Revolução Industrial iniciou-se na segunda metade do século XIX (1850-1870), e terminou durante a Segunda Grande Guerra Mundial (1939-1945), envolvendo uma série de desenvolvimentos dentro da indústria química, elétrica e de aço. A Terceira Revolução Industrial ficou assinalada pela mudança dos sinais analógicos pelos digitais no início dos anos 50 até ao final dos 70. Considera-se que esta compreende três momentos chave: o primeiro remonta à primeira metade do século passado, quando a estrutura principal do computador é desenvolvida; a segunda, no início dos anos 80 com a primeira vaga de computadores pessoais; e a terceira, no início dos anos 90 com a chegada da *internet* (OCDE, 2019). Isso repercutiu-se em rápidos desenvolvimentos nos seus meios, por exemplo, na substituição dos sinais analógicos pelos digitais (atualmente utilizados nos *smartphones*), na criação da fibra ótica e das redes *wireless*, que vieram possibilitar a emergência de uma rede digital de comunicação global (Encyclopedia.com, 2020). Foi então nesta sequência, que as tecnologias de informação e da comunicação (TIC) adotaram este poder revolucionário das tecnologias digitais[1]. Na sua origem, o acrónimo TIC pode ser considerado uma extensão da designação tecnologias de informação (TI). Esta última, apareceu pela primeira vez num relatório de Leavitt e Whisler (1958) sobre a gestão de negócios e índices de produtividade afetados por novas ferramentas eletrónicas. Isto, porque os equipamentos tecnológicos surgiram primeiramente associados ao mundo laboral (Aponte, 2009). Só três décadas mais tarde é que surge a designação de Tecnologia da Comunicação definida como "o equipamento de *hardware,* estruturas organizacionais e valores sociais pelos quais os indivíduos armazenam, processam e trocam informações com outros indivíduos" (Rogers, 1986; p. 2), realçando o benefício destas em conectar pessoas apesar da restrição da distância geográfica entre elas. Os avanços nas tecnologias eletrónicas e de computação promoveram o desenvolvimento das tecnologias de informação, tornando inevitável a junção de ambos (e.g., o aperfeiçoamento progressivo dos computadores pessoais com processadores de texto e disco rígido). Assim, as TIC passam a poder ser entendidas como a variedade de bens, aplicações, produtos e serviços com o objetivo de produzir, armazenar, processar, distribuir e converter informação (*United Nations Development Programme*, 2021). No

[1] Os termos tecnologias digitais e TIC passarão a ser utilizados de forma indistinta ao longo deste trabalho dada esta estreita ligação e a facilidade de utilização deste acrónimo.

entanto, a difusão da sua designação só se vem a sentir na década de 90 com a chegada da internet e de uma ampla variedade de TIC que têm surgido até aos dias de hoje (Stafford & Hillyer, 2012). Delas, são exemplo o telemóvel, o *smartphone*, o *tablet*, os *ebooks* e as redes sociais (Eurostat, 2021).

As TIC estão maioritariamente associadas a novas e sofisticadas tecnologias como o *tablet* ou a videoconferência, porém estas também englobam tecnologias mais convencionais, como a televisão ou o telefone fixo (Eurostat, 2021). Mas mais importante do que salientar dicotomias suscetíveis de as distinguir como tradicionais/novas ou *software/hardware*, é focarmo-nos na poderosa capacidade destas se ajustarem e se interconectarem (Reddi, 2012). Quase sem darmos por isso, conduzidos pela progressiva disponibilidade tecnológica e pelas suas novas formas de interação, nos últimos anos entrámos num novo capítulo do desenvolvimento humano: a Quarta Revolução Industrial (Schwab & Davis**,** 2018). Esta Quarta Revolução ou Indústria 4.0 foi um conceito apresentado por Klaus Schwab em 2014, face ao nível de desenvolvimento que a industrialização estava a atingir e que se refere à mistura de técnicas de produção de vanguarda com sistemas inteligentes que se integram com as organizações e com pessoas (Compete 2020, 2022). Na sequência das suas precursoras e fortemente sustentada pelas inovações digitais da Terceira Revolução Industrial, tecnologias como a inteligência artificial, o armazenamento de dados em nuvem, a impressão a três dimensões, a robótica, a biotecnologia, a internet das coisas e a realidade virtual, foram e estão a ser fortemente desenvolvidas. Mas se por um lado, a Primeira Revolução Industrial partiu do carvão, do vapor e do ferro (permitiu a passagem do modelo artesanal para a produção industrial), a Segunda teve como protagonistas a eletricidade, o petróleo e a química (permitindo a massificação da manufatura) e a Terceira baseou-se na informação como matéria-prima. Contudo, a presente Revolução Industrial não parece ser tanto definida por um conjunto de tecnologias emergentes em si mesmas, mas sobretudo pela transição em direção a novos sistemas que estão a ser construídos sobre a infraestrutura da revolução digital (e.g., big data, a*dvanced analytics, cyber segurança*). Isto, graças a princípios tecnológicos como a interconetividade (capacidade de os sistemas operarem entre si), a virtualização (criação de cópias virtuais de modelos físicos), a descentralização (tomada de decisão

por parte de sistemas computacionais sem intervenção humana) e a capacidade de resposta em tempo real, que estão a ser colocados em prática (Schwab & Davis, 2018).

Aplicado às TIC, estes avanços tecnológicos aliados ao crescente número de utilizadores, fez aumentar exponencialmente as interações online (Stafford & Hillyer, 2012). A interconetividade associada à utilização de dispositivos móveis e a rápida proliferação de redes sociais fez emergir novos padrões de utilização das TIC (Haythornthwaite, 2005; Houghton & Joinson, 2010; Stafford & Hillyer, 2012; Zhong, 2013). Distintos dos padrões tradicionais de comunicação, como a presencial cara a cara ou através do telefone fixo, estes novos cenários comunicacionais envolvem uma multiplicidade de TIC, com diversas funcionalidades e elevado risco de adição (Stern & Messer, 2009). Assim, fenómenos como a multitarefa online (desempenho simultâneo de atividades online), multiplicidade de TIC (utilização de múltiplas tecnologias para interagir com uma mesma pessoa), a multicomunicação (interação simultânea com várias pessoas através do mesmo dispositivo) e a conetividade perpétua (estar permanentemente online) vieram revolucionar a forma como comunicamos e nos relacionamos (Chin et al., 2019; Mesch & Talmud, 2007; Stafford & Hillyer, 2012; Zhong, 2013).

Em suma, o avanço e a incorporação das TIC nas vivências do quotidiano recriaram cenários de interação e modelos de relação (familiar e social) baseados numa sociedade em rede (Aponte, 2009; Bacigalupe & Lambe, 2011; Blinn-Pike, 2009; Castels, 2006, Lanigan, 2009; Stafford & Hillyer, 2012; Stern & Messer, 2009). E ainda que nos situemos no seu estádio inicial, esta Revolução abrange mais do que uma etapa do desenvolvimento tecnológico. Aliada à atual situação pandémica provocada pela COVID-19 e aos múltiplos impactos que esta situação tem provocado nas nossas vivências diárias, anuncia-se uma mudança de paradigma que transformará fundamentalmente a forma como vivemos, trabalhamos e nos relacionamos (Maeneja & Abreu, 2020; Nouwen & Duflos, 2021; Santos et al., 2020; Schwab & Davis, 2018).

As TIC no quotidiano de vida familiar

"Perhaps no other factor has altered the family landscape in the 21st century more than the rise of technology."
(Hawley, 2019, in Hertlein & Twist, 2019, p. 3)

Estima-se que a atual prevalência das TIC abranja a vida de 3.7 biliões de pessoas, ou seja, cerca de metade da população mundial (Hertlein & Twist, 2019). Um estudo publicado em abril de 2020 em 34 países revelou que, nestes, 77% das pessoas utilizavam a internet ocasionalmente ou possuíam *smartphone* (Pew Research Center, 2020). No entanto, o fosso digital mostrou-se visível. Por exemplo, 99% da população dos Emirados Árabes Unidos e 88% da população norte americana revelou utilizar a internet, contrastando respetivamente com os 29%, 33% e os 0.1% da população africana, do Sul da Ásia e da Coreia do Norte. Dentro de cada um destes países, este fosso revelou-se igualmente visível com uma maior utilização da internet por parte de indivíduos mais jovens, com maior nível académico e socioeconómico.

De acordo com a última publicação da Eurostat (2021), 90% das residências europeias (27 países) tinham acesso à internet, o que representa um aumento de 26% nos últimos 10 anos. Em Portugal, este valor situou-se nos 81% e assumiu um aumento de 20% desde os últimos seis anos. Esse ano, na Europa, indivíduos com idades compreendidas entre os 16 e os 74 anos acederam diária (77%) e semanalmente (84%) à internet. Em Portugal, a mesma utilização rondou os 65% e os 73%, sendo que 62% dos indivíduos o fez em mobilidade (através de *smartphone*).

A nível europeu, a internet é utilizada sobretudo para enviar/receber emails (75%), pesquisar informação sobre bens e serviços (68%), veicular mensagens (67%), ver notícias (63%), realizar transações bancárias (58%), pesquisar informação relacionada com saúde (55%), participar em redes sociais (54%), ouvir música (53%), e efetuar telefonemas e/ou videochamadas (52%). É de salientar que em Portugal a percentagem de utilização de redes sociais se situa nos 60%, ligeiramente acima da média europeia. No entanto, verifica-se um elevado nível de desigualdade no que concerne à utilização da internet em Portugal: embora uma minoria da população a use para uma grande

variedade de atividades, a maioria da população usa-a com fins limitados, como a pesquisa de informação sobre assuntos de saúde ou para expressar opiniões de carácter político (OCDE, 2019).

Partindo inicialmente do contexto laboral, as TIC rapidamente encontraram um lugar de destaque no contexto familiar, tornando-se parte integrante da vida das famílias contemporâneas (Aponte, 2009; Coyne et al., 2011; Livingstone et al., 2014). Esta migração ficou a dever-se ao processo de domesticação das TIC pelas famílias, processo pelo qual tecnologias novas e desconhecidas passaram a estar presentes nas casas e a estar sob controlo dos seus utilizadores (Haddon, 2006; Mesch, 2006a; Silverstone et al., 1992) e que no seu reverso potenciou o desenvolvimento de tecnologias mais sofisticadas e progressivamente mais bem-adaptadas às necessidades dos contextos familiares (Blinn-Pike, 2009; Gora, 2009; Haddon, 2006).

Do ponto de vista histórico, e à semelhança da Primeira Revolução Industrial, também a Revolução Tecnológica acarretou mudanças significativas nas famílias, sobretudo ao nível da estrutura e do processo familiar (Hertlein & Blumer, 2014). Assim, se por um lado a estrutura familiar se alterou de predominantemente extensa para nuclear após a Primeira Revolução Industrial (Bengston, 2001; Nichols & Schwartz, 1998), com a Revolução Tecnológica assistiu-se ao reencontro e integração da família alargada no quotidiano de vida familiar, mediante a possibilidade de comunicações à distância e da manutenção de relações virtuais, apesar do distanciamento geográfico (Bacigalupe & Camara, 2014; Bacigalupe & Lambe, 2011; Khvorostianov, 2016). O processo (da história) familiar foi duplamente abalado após ambas as Revoluções, repercutindo-se na sobreposição do tempo laboral e familiar (Kennedy et al., 2008). Mas se na Primeira Revolução se passou a adotar o fim de semana enquanto tempo dedicado à família, na atual vida contemporânea assiste-se a um progressivo enfraquecimento dos limites entre a esfera laboral e familiar, face à crescente invasão do espaço doméstico pelo trabalho através dos meios tecnológicos (Chelsey, 2005; Hertlein & Blumer, 2014; Wajcman et al., 2010; Stafford & Hillyer, 2012).

Atualmente, há casais e famílias que vivem imersos em tecnologia (Trilar et al., 2018). As TIC passaram a ocupar um lugar de destaque também na organização de tarefas (Hall & Woszidlo, 2021; Melrose et al., 2016; Messena & Everri, 2019), nos modos de comunicação (Hertlein & Twist, 2019; Ponte et al., 2018), na recriação de rotinas e

rituais familiares (Abel et al., 2021; Hertlein & Blumer,2014; Khvorostianov, 2016; Yang, 2018), na emergência de novas formas de interação e de modelos de relação baseados numa sociedade em rede (Artigo 1; Castells et al., 2006; Lanigan, 2009; Trilar et al, 2019), trazendo profundas alterações na vida familiar quotidiana (Artigo 1; Gora, 2009; Hertlein & Blumer, 2014; Mullan & Chatzitheochari, 2019; Neustaedter et al., 2018; Ponte, 2019).

A família é composta por pessoas que têm uma história e um futuro em comum, abrangendo uma rede complexa de relações e emoções na qual se passam sentimentos e comportamentos (Gameiro, 1994) ao longo de pelo menos três gerações, que são mantidas ligadas por laços de sangue, legais e/ou históricos, independentemente das configurações que possam assumir (McGoldrick et al, 2016). Considerando a família como célula basilar da vida em sociedade, mostra-se assim relevante conhecer a natureza destas transformações provocadas pelas TIC e perceber as implicações que estão a ter nas dinâmicas familiares. Estas dinâmicas podem ser conceptualizadas como os esquemas relacionais e interativos entre os membros da família que possibilitam movimentos adaptativos e de mudança por parte desta, tanto em função dos sistemas envolventes ao seu redor, como em relação aos subsistemas mais íntimos no interior da própria família (Gerhardt, 2019). Estes movimentos de abertura e de fecho são o que permite ao sistema familiar ter um equilíbrio dinâmico, tanto em diferenciação /coordenação (em relação ao exterior, suprassistema e ao interior, subsistemas), como entre movimentos de evolução e conservação (Relvas, 1996). Contudo, ao focarmo-nos na interação entre a utilização das TIC e as dinâmicas familiares, percebemos que a literatura encontrada revela resultados escassos e ambivalentes. Por exemplo, há estudos que referem que as TIC fortalecem laços familiares (Bacigalupe & Lambe, 2011; Stern & Messer, 2009; Stevenson, 2011), aumentando o tempo em família (Lanigan, 2009; Plowman et al., 2010) através da partilha de atividades online. Outros, ressaltam a diminuição deste tempo e conflitos intergeracionais (Huisman et al., 2012; Mesch, 2006a) face à frequência de utilização da internet para fins de entretenimento pelos filhos e o surgimento do fenómeno da *cultura de quarto*, onde os filhos se isolam em atividades *online* com amigos (Mesch, 2006a). As competências tecnológicas dos jovens acentuaram o fosso digital intergeracional (Brandtzæg, 2010; Lanigan, 2009, Mesch, 2006a) dificultando o exercício duma parentalidade sem modelo referencial face às TIC (Plowman et al., 2010), onde a autoridade é desviada para os jovens, pondo em causa

regras e valores familiares (Stevenson, 2011; Mesch, 2006a; Huisman et al., 2012). A emergência de fenómenos como a *multicomunicação* e a *conetividade perpétua* tendem a potenciar disrupções nas rotinas familiares (Mesch, 2006a; Przybylski et al., 2013; Roberts & David, 2016; Stafford & Hillyer, 2012), a suscitar situações de perda de controlo sobre as interações online (Stafford & Hillyer, 2012; Young, 2000) e a poder diluir limites entre as esferas pública e privada (Houghton & Joinson, 2011; Mesch, 2006b; Stafford & Hillyer, 2012). No seu reverso, a gestão diária de atividades em tempo real através de múltiplos dispositivos móveis ficou facilitada (Bacigalupe & Bräuninger, 2017; Melrose et al., 2016; Stafford & Hillyer, 2012), a possibilidade de mediar rituais e tradições familiares através das TIC (Abel et al., 2021; Hertlein & Blumer, 2014; Yang, 2018), a hipótese de manter relações à distância, onde a família pode tornar-se virtualmente presente e assegurar a sua identidade familiar (Bacigalupe & Lambe, 2011; Khvorostianov, 2016; Neustaedter et al., 2018), parece refletir-se positivamente em diversas dimensões da qualidade de vida familiar (Ali et al., 2020; Gaspar et al., 2013).

Em suma, os estudos evidenciam que as TIC têm introduzido mudanças sem precedentes na dinâmica familiar (Artigo 1; Lanigan, 2009; Stafford & Hillyer, 2012). Porém, centram-se sobretudo na dicotomia vantagens/riscos de utilização, reportam-se maioritariamente ao impacto das TIC no funcionamento familiar e circunscrevem-se sobretudo às etapas da infância (e.g., Haddon & Livingstone, 2012; Huisman et al., 2012; Plowman et al., 2010) e adolescência (Haddon & Livingstone, 2012; Huisman et al., 2012; Mesch, 2006a; Stevenson, 2011), assinalando uma grande variedade de atividades online (e.g., jogar, conhecer pessoas, teletrabalhar). Acrescentar que alguns estudos encaram as TIC como um novo subsistema da família (Johnson, 2010; Lanigan, 2009), advogando que a adoção que as famílias fazem destas varia em função da sua etapa desenvolvimental (Bacigalupe & Lambe, 2011; Gora, 2009; Lanigan, 2009; Mesch, 2006b; Watt & White, 1999), o que pode em parte explicar a disparidade de resultados encontrados na literatura.

Enquadramento

"Uma teoria não é o conhecimento; permite o conhecimento. Uma teoria não é uma chegada; é a possibilidade de uma partida. Uma teoria não é uma solução; é a possibilidade de tratar um problema."

(Edgar Morin, 1994)

Os paradigmas de investigação podem ser vistos como um conjunto de asserções, conceitos ou proposições que orientam o pensamento do investigador e a própria investigação (Bogdan & Biklen, 1982), assentes em três domínios interdependentes: ontológico, epistemológico e metodológico (Guba & Lincoln, 1994). Mais concretamente, estes procuram responder a questões como: 1) o que é a realidade? (ontológico); 2) como a posso conhecer, interpretar, aproximar-me dessa realidade? (epistemológico); e 3) como devo proceder para conhecer essa realidade? (metodológico).

Por conseguinte, este estudo enquadra-se no paradigma (pós) positivista (Guba & Lincoln, 1994), considerando que a realidade é real, mas apenas pode ser apreendida de um modo imperfeito e probabilístico devido às características do investigador e à natureza complexa do objeto de estudo. Para conhecer e interpretar essa realidade, partimos do conhecimento teórico existente de maneira a formularmos as nossas hipóteses de investigação. Assim, este estudo segue uma orientação epistemológica baseada nos modelos sistémicos, de acordo com uma lógica circular e inerente à complexidade relacional, sobretudo ao nível da Teoria Geral dos Sistemas (Von Bertalanffy, 1975), da Pragmática da Comunicação Humana (Watzlawick et al., 1993), da Teoria da Cibernética (Wiener, 1948), do Modelo Ecológico de Desenvolvimento Humano (Bronfenbrenner, 1977) e das Teorias Desenvolvimentais (McGoldrick et al, 2016; Relvas, 1996). Seguindo esta orientação epistemológica e aplicados à compreensão do impacto das tecnologias nas famílias, dois modelos revelaram-se particularmente relevantes: o sociotecnológico (Lanigan, 2009) e o tecnológico do casal e da família (*Couple and family technology framework*; Hertlein & Blumer, 2014). Ambos integrados numa perspetiva ecológica (Bronfenbrenner, 1977), focada na influência

(recursiva) exercida sobe o sistema familiar pelo contexto envolvente: microssistema (e.g., família, amigos), exosistema (vizinhos, serviços de saúde, tecnologias), macrosistema (cultura, leis, ideologias) e cronosistema (diversas forças sistémicas de caráter económico, político, desenvolvimental, etc) e abarcando a complexidade de interações humanas, tecnológicas e contextuais. Distingue-os o facto do primeiro modelo ser mais macroscópico, assente em teorias desenvolvimentais e focado nos componentes que contribuem para o impacto das TIC nas famílias (Lanigan, 2009). O segundo, considera a integração das TIC na vida quotidiana dos casais e das famílias como algo que influencia o comportamento (domesticação) e que é suscetível de produzir alterações recíprocas na estrutura (como as famílias se organizam, por exemplo, ao nível das regras, papéis e limites) e no processo (como as famílias desenvolvem as suas interações, por exemplo, através da comunicação, rituais) das relações. Por fim, do ponto de vista metodológico, este trabalho assume uma abordagem quantitativa de dados (Langdridge & Hagger-Johnson, 2013) como forma de aceder ao que pode ser conhecido.

Questão de Partida

Qual a influência das TIC nas dinâmicas familiares?

Objetivos

Reconhecendo a escassa literatura no que toca à interação entre a utilização das TIC e a dinâmica familiar, apresentando esta resultados díspares entre si (e.g., dicotomia vantagens/riscos de utilização) e focada, parcelarmente, em diferentes etapas evolutivas do ciclo familiar (e.g., famílias com filhos adolescentes), pretendeu esta investigação contribuir para colmatar esta lacuna teórica e empírica, com o objetivo primordial de caracterizar a utilização das TIC pelas famílias portuguesas, analisando a sua relação com a dinâmica familiar, nas diferentes etapas do ciclo vital da família (CVF). Assim, mostra-se importante expandir o foco de análise: identificar a variedade de utilizações das TIC, avaliar diversas dimensões da dinâmica familiar nesta interação (para além do funcionamento familiar) e considerar uma perspetiva desenvolvimental, pontuando diferentes etapas do seu ciclo vital (McGoldrick et al., 2016; Relvas, 1996).

Desta forma, para concretizar esta investigação foram definidos os seguintes objetivos específicos:

1) Desenvolver e validar uma medida da perceção individual do impacto das TIC no contexto familiar e do tipo de problemas que as TIC acarretam para as famílias face à sua utilização (baseado no instrumento *Emerging Technologies & Families Survey*; SEFT/ETEF©; Bacigalupe et al., 2014);
2) Caracterizar a utilização das TIC na população geral portuguesa, identificando possíveis padrões de utilização individual das TIC – considerando o tipo, a variedade, a frequência, a atividade e os contextos de utilização das tecnologias, agrupados de acordo com a tipologia de utilização dos media (não utilizador, esporádico, passatempo, entretenimento/sociável, instrumental e avançado; Brandtzæg, 2010);
3) Analisar a influência da utilização das TIC (consoante o padrão de utilização individual) na dinâmica familiar (avaliada nas dimensões do funcionamento familiar, qualidade de vida familiar e rituais familiares), em diferentes etapas do ciclo de vida familiar;
4) Construir e testar um modelo compreensivo e sistémico da relação entre TIC e a dinâmica familiar, que possa servir como base teórica de investigação e referencial clínico de intervenção sistémica (individual, conjugal e familiar).

Desenho da investigação

Com o intuito de alcançar os objetivos definidos e de acordo com o paradigma de investigação pós-positivista, foi elaborado um plano de investigação com um desenho de caráter transversal e com recurso a metodologias quantitativas (Creswell, 2009; Hússen, 1988), organizado de acordo com os seguintes estudos e etapas:

O primeiro estudo (1) desta investigação teve duas etapas. A primeira consistiu numa revisão crítica da literatura sobre a influência das TIC no funcionamento familiar, de modo a obter um referencial teórico sobre a temática que permitisse orientar os estudos seguintes. A segunda, envolveu a elaboração do projeto desta investigação. Ainda que este tenha sofrido algumas alterações em função dos resultados que foram sendo obtidos no curso da investigação, representa o seu ponto de partida.

O segundo estudo (2) corresponde ao desenvolvimento de um instrumento para avaliar a utilização das TIC e que permitisse caracterizar não só a sua utilização individual, como também criar uma medida da perceção individual do impacto das TIC no contexto familiar e do tipo de problemas que as TIC acarretam para as famílias face à sua utilização (objetivo 1). Este estudo contemplou três momentos: (a) investigação preliminar e exploratória para a elaboração dos itens do instrumento, baseado no instrumento *Emerging Technologies & Families Survey* (SEFT/ETEF©; Bacigalupe et al., 2014); (b) a sua construção com a respetiva validação para a população portuguesa, com a colaboração do autor do instrumento no qual nos baseamos (Gonzalo Bacigalupe); e (c) a identificação de padrões de utilização individual das TIC na população geral portuguesa, segundo a Tipologia de Utilização dos Media (MUT; Brandtzæg, 2010): (objetivo 2).

O terceiro estudo (3) englobou a aplicação de um protocolo de autorresposta que integrou diversos instrumentos de medida, um dos quais o desenvolvido no estudo 2. Este terceiro estudo recaiu sobre a análise da influência da utilização das TIC na dinâmica familiar, em diferentes etapas do ciclo de vida familiar (objetivo 3). Dada a complexidade de interações de que esta realidade se reveste e a permanente necessidade das famílias se readaptarem aos desafios que o mundo tecnológico lhes coloca (Brandtzæg, 2010, 2011; Hertlein & Twist, 2019), procuramos olhar de forma mais próxima para os (sub)sistemas familiares circunscritos a estas etapas. Assim, o princípio sistémico da totalidade (Morin, 1994) que contempla que "é impossível compreender o todo sem conhecer as partes", foi aqui tido em consideração. Então, foram realizados diversos recortes da amostra para investigar diferentes etapas do ciclo de vida familiar (McGoldrick et al., 2016), contemplando somente o funcionamento familiar.

Dado que também é "preciso reunir para compreender" (Morin, 1994), no quarto estudo (4) tentamos lançar um olhar mais abrangente do ponto de vista sistémico, procurando através da integração dos estudos precedentes e englobando um maior número de variáveis implicadas nesta interação, continuar a analisar a influência da utilização das TIC na dinâmica familiar, e adicionalmente, construir e avaliar um modelo sistémico compreensivo da relação entre as TIC e a dinâmica familiar que pudesse vir a servir de base teórica de investigação e um referencial clínico de intervenção neste

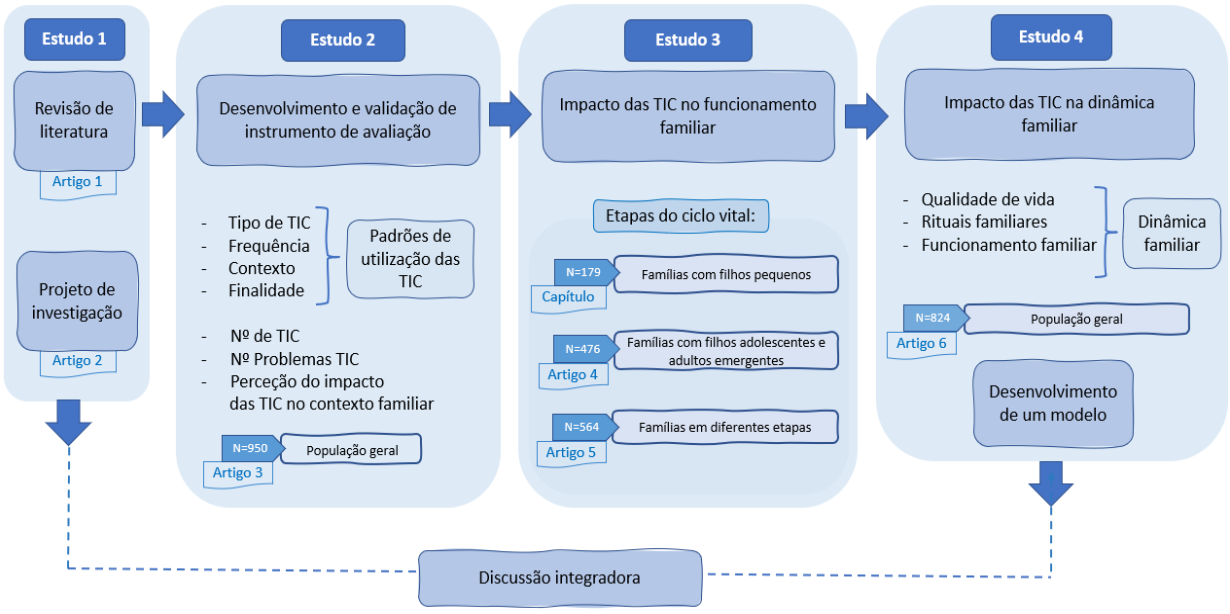
domínio (objetivo 4). Deste modo, este estudo assume dois momentos: (a) no primeiro, examinar a interação entre as variáveis das TIC e das dinâmicas familiares, através de uma análise multigrupos (SEM), considerando os diferentes padrões de utilização das TIC encontrados na população como variável moderadora; e no segundo, (b) construir um modelo compreensivo da relação TIC-dinâmica familiar. É de referir que este último estudo representa um ponto de viragem nesta investigação face aos resultados obtidos no estudo 3. Mais concretamente, no que concerne ao efeito não moderador das etapas do ciclo vital na interação TIC-dinâmica familiar. Uma vez que esta relação não foi empiricamente validada, não fazia sentido integrar esta variável no modelo a desenvolver, pelo que os padrões de utilização das TIC foram considerados enquanto variável moderadora no último estudo realizado. Para concluir, foi realizada uma análise sob a forma de síntese integradora dos principais resultados encontrados nos diferentes estudos.

Mapa conceptual da investigação

A Figura 1 apresenta o desenho sequencial explicativo do plano de investigação concretizado, salientando as principais variáveis bem como o tamanho das amostras consideradas em cada estudo.

Figura 1

Mapa conceptual da investigação



Procedimento

A amostra foi recolhida através de um procedimento de amostragem não probabilístico (Vogt, 1999) em formato de papel e *online*. Esta última modalidade foi realizada através do protocolo de autorresposta inserido na página *http://www.ictfamilydynamics.net/,* criada para esta investigação, no âmbito de uma bolsa de Estágio Erasmus que a autora realizou no *Observatorio de los Contenidos Audiovisuales* (OCA), na Universidade de Salamanca.

Esta página *web* integra a contextualização da investigação, a apresentação da equipa de investigação e a ligação à plataforma *Limesurvey* (para acesso ao protocolo de autorresposta, à finalidade da investigação, às condições de participação e ao consentimento informado). Após a fase de recolha de dados têm sido publicados alguns resultados da investigação nesta página. Para sustentar a exequibilidade da dimensão da amostra proposta, a página *web* foi divulgada em redes sociais, em *mailing lists* do Centro de Estudos Sociais (CES) e das Faculdades de Psicologia das Universidades de Coimbra e Lisboa.

De forma a garantir a incorporação de dados por agregado familiar, foi criado um sistema de codificação em todos os protocolos (escritos em papel e online), tendo sido salvaguardados os princípios de confidencialidade (4.07) do Código Ético da Associação Americana de Psicologia (APA, 2017). Os dados recolhidos foram posteriormente transcritos e exportados para *softwares* estatísticos para análise.

Participantes

Esta investigação contou com diferentes participantes nos diversos estudos realizados, recolhidos através de uma amostragem não probabilística (Vogt, 1999) e mediante o preenchimento de um protocolo de investigação (ver Anexo A) nos formatos: online (mediante a partilha do *link* de acesso à página *web*) e presencial (através de um protocolo em papel distribuído pelo país). O tempo médio de preenchimento do protocolo total foi sensivelmente de 20 minutos.

No estudo 2 (Desenvolvimento e validação de um instrumento) participaram 950 indivíduos entre janeiro de 2015 e setembro de 2017. A recolha de dados foi realizada no formato presencial, através do protocolo escrito distribuído pelo país, e online,

difundido através do *link* da página *web*. Os critérios de inclusão circunscreveram-se a ter nacionalidade portuguesa e possuir no mínimo 12 anos de idade. Em setembro de 2017, foi adicionalmente conduzida uma análise de confiabilidade teste reteste com três semanas de intervalo com a participação de 57 indivíduos.

No estudo 3 (Influência das TIC no funcionamento familiar), foram realizadas três tarefas às quais correspondem três momentos de recolha de dados diferenciados. Na tarefa 1 (Capítulo *ebook*), participaram 179 indivíduos pertencentes a famílias com filhos até aos oito anos, que responderam ao protocolo online entre outubro de 2016 e março de 2018. Apenas um dos elementos de cada casal foi selecionado (de forma a garantir a independência dos dados). Na tarefa 2 (Artigo 4), participaram 476 indivíduos, 307 pertencentes a famílias com filhos adultos emergentes e 169 pertencentes a famílias com filhos adolescentes, que preencheram um protocolo escrito, entre janeiro e setembro de 2016. Pelo menos, dois elementos de diferentes gerações de cada família nuclear preencheram o protocolo (de forma a obter respondentes pais e filhos em ambas as etapas do ciclo de vida familiar). Na tarefa 3 (Artigo 5), participaram 564 indivíduos pertencentes a famílias em diferentes etapas do ciclo evolutivo familiar (McGoldrick, 2016), tendo a amostra sido recolhida através dos dois métodos, entre janeiro de 2016 e janeiro de 2018. O processo de amostragem contemplou, pelo menos, dois elementos por agregado familiar, para que fosse possível executar análises estatísticas multinível.

No estudo 4 (Construção de modelo explicativo TIC-dinâmica familiar), participaram 825 indivíduos da população geral portuguesa que preencheram ambos os formatos do protocolo total entre o período de janeiro de 2017 e janeiro de 2019. Foram critérios de seleção ter nacionalidade portuguesa e possuir no mínimo 18 anos de idade. Apenas foi considerado um elemento por agregado familiar (de forma a garantir a independência dos dados).

Instrumentos

A recolha dos dados foi realizada através de um protocolo de investigação composto, no seu todo (ver Anexo A), por:

a) Questionário de dados sociodemográficos e complementares;

b) Questionário de utilização das tecnologias de informação e comunicação (QUTIC) (caracterização da utilização das TIC, medida da perceção individual do impacto das TIC no contexto familiar e do tipo de problemas que as TIC acarretam para as famílias face à sua utilização);

c) *Systemic Clinical Outcome Routine Evaluation – 15* (SCORE-15), como medida do funcionamento familiar (Stratton et al., 2014; Vilaça, Silva, & Relvas 2014);

d) Qualidade de vida familiar (QOL – versão reduzida), como medida da qualidade de vida familiar (Olson & Barnes, 1982; Cunha & Relvas, 2016);

e) Questionário dos Rituais Familiares (FRQ), como medida dos rituais familiares (Crespo, 2007; Lind, 2012).

Nos sucessivos estudos, foram utilizados os seguintes instrumentos (Tabela 1):

Tabela 1

Instrumentos utilizados nos estudos

	Instrumento				
	QDS	QUTIC	SCORE-15	QOL	FRQ
Estudo 1[a]					
Estudo 2 (artigo 3)	•	•	•		
Estudo 3 (capítulo *ebook*)	•	•	•		
Estudo 3 (artigo 4)	•	•	•		
Estudo 3 (artigo 5)	•	•	•		
Estudo 4 (artigo 6)	•	•	•	•	•

Nota. QDS = Questionário de dados sociodemográficos e complementares; QUTIC = Questionário de utilização das tecnologias de informação e da comunicação; SCORE-15 = Systemic Clinical Outcome Routine Evaluation – 15*;* QOL = Qualidade de vida familiar; FRQ = Questionário dos Rituais Familiares.

[a] Estudo 1 = revisão literatura e artigo teórico (não foram aplicados instrumentos)

Análise de dados

A maior parte da análise de dados estatísticos ao longo dos estudos processou-se através do *software Statistical Package for Social Sciences* (SPSS, versão 25), tendo-se realizado sobretudo análises descritivas, correlacionais e inferenciais. Nos estudos psicométricos de validação do QUTIC (estudo 2) foram efetuadas ainda análises da validade de construto (segundo uma análise de componentes principais), de consistência interna, de validade discriminante e de confiabilidade teste reteste.

Adicionalmente, e com recurso a este *software*, foram realizadas correlações (no estudo 2, nas tarefas 1 e 2 do estudo 3 e no estudo 4) e análise de clusters para gerar padrões de utilização das tecnologias (nos estudos 2 e 4), bem como análises de regressão linear múltipla (tarefa 2 do estudo 3) e multinível (na tarefa 3 do estudo 3), de modo a especificar a influência que as TIC a nível individual (nível 1) e familiar (nível 2) têm no funcionamento familiar. Por fim, recorreu-se ao *software AMOS* (versão 25) para que, através da análise de caminhos (*path analysis*), se pudesse construir e validar um modelo explicativo da interação TIC-dinâmica familiar (Artigo 6).

Estrutura da Dissertação

A presente dissertação organiza-se em quatro capítulos que integram e interligam os quatro estudos realizados, precedidas de uma introdução e finalizadas com uma discussão integradora dos resultados obtidos.

O primeiro capítulo, denominado "TIC e família: o que sabemos, o que não sabemos e o que nos propomos investigar", é constituído por dois artigos. O primeiro, é um artigo científico de revisão crítica da literatura focada na influência das TIC no funcionamento familiar: "*Family functioning and information and communication technologies: How do they relate? A literature review*" (Artigo 1). O objetivo fundamental desta revisão foi obter um referencial teórico sobre a temática. Adicionalmente, possibilitou-nos também refletir sobre algumas limitações encontradas na literatura e, deste modo, pensarmos em possíveis linhas futuras de investigação que orientassem os nossos estudos seguintes. O segundo artigo, "*Information and communication technologies and family: Patterns of use, life cycle and family dynamics*" (Artigo 2), consiste no projeto de investigação formulado inicialmente e publicado numa revista científica. Em virtude dos resultados obtidos ao longo dos diferentes estudos houve necessidade de o adaptar, pelo que esta dissertação não espelha totalmente o projeto pensado inicialmente. Mas dado que este representa o seu ponto de partida, é aqui apresentado. Estes dois artigos que integram o primeiro capítulo constituem o que designámos por Estudo 1.

O segundo capítulo, intitulado "Como são utilizadas as TIC? Caracterização da sua utilização e do impacto na vida familiar dos Portugueses" é constituído por um artigo

científico "*Portuguese families in a digital world: Developing an instrument to measure the use and impact of technology"* (Artigo 3)*,* que apresenta os estudos de validação do instrumento construído no contexto da presente investigação com o propósito de caracterizar a utilização das TIC pela população portuguesa, de criar uma medida da perceção individual do impacto das TIC no contexto familiar e assinalar o tipo de problemas que as TIC acarretam para as famílias face à sua utilização (estudo 3). Desta forma, foi possível apurar padrões de utilização das TIC baseando-nos na Tipologia de Utilização dos Media (MUT; Brandtzæg, 2010), considerando não só a frequência de utilização, mas também os diversos tipos de tecnologias, as atividades e os contextos de utilização destas.

O terceiro capítulo, designado "Influência das TIC no funcionamento familiar, em diferentes etapas do ciclo de vida da família", integra o capítulo de um *ebook "e-Famílias: O impacto das TIC na vida contemporânea de famílias com crianças"* (Capítulo *ebook*) e dois artigos: *"ICTs and family functioning: A study with portuguese families with adolescents and emerging adults"* (Artigo 4) e *"Digital technologies use: Does the family life cycle stage matter?"* (Artigo 5), que focam a influência das TIC no funcionamento familiar em sucessivos recortes no que concerne às etapas do ciclo de vida familiar.

O quarto capítulo, intitulado "TIC e dinâmica familiar: Interações à luz de diferentes padrões de utilização", integra o artigo *"The interplay between ICTs and family dynamics across different patterns of technology use"* (Artigo 6) onde todas as variáveis contempladas nesta investigação (no que toca às TIC e à dinâmica familiar), convergem na construção de um modelo explicativo da interação entre as TIC e as dinâmicas familiares.

Para concluir, foi realizada uma análise sob a forma de síntese integradora dos principais resultados encontrados nos diferentes estudos. Esta, foca ainda as principais limitações da investigação e considera possíveis implicações para futuros estudos e intervenções sistémicas (assinalando estratégias preventivas e interventivas dirigidas a indivíduos, casais e famílias face às problemáticas associadas à utilização das TIC), focando riscos e realçando potencialidades da integração destas no dia a dia dos sistemas familiares, de forma a promover a sua qualidade de vida.

Os artigos que constam neste trabalho obedecem às normas de publicação da revista para a qual foram submetidos, nas restantes partes da tese procurou seguir-se

as normas da 7ª edição da APA (APA, 2019). O Anexo A integra o protocolo de investigação utilizado.

Capítulo 1 | TIC e família:

o que sabemos, o que não sabemos e o que nos propomos investigar

Artigo 1 - *Family functioning and information and communication technologies: How do they relate? A literature review*

Artigo 2 - *Information and communication technologies and family: Patterns of use, life cycle and family dynamics*

Family functioning and information and communication technologies: How do they relate? A literature review

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Abstract

The advances and incorporation of information and communication technologies (ICTs) in everyday family life has earned a place of prominence in the research field. This paper provides a research synthesis of the literature published between 1998 and 2013 examining the relationship of ICTs and family functioning. Searching through databases, 45 papers were located and analyzed which enabled the conceptualization of this relationship in five domains: 1) Attitudes toward ICTs, 2) Types of ICTs and using patterns, 3) Family cohesion, 4) Family roles, rules, and intergenerational conflicts, and 5) Family boundaries. Results show that ICTs have implied qualitative changes in family functioning, creating new interaction scenarios and rearranging current family relational patterns. Some gaps in the literature are pointed out, such as the difference operationalization of variables and the use of non-standard instruments in the studies. Suggestions are made for clinical interventions and future research in this domain.

Keywords: Everyday family life; family functioning; family relations; information and communication technologies (ICTs); studies.

I Introduction

Information and communication technologies (ICTs) include hardware (e.g., computers, smartphones, game consoles) and software (e.g., email, videoconferencing, online social networks) that sustain the digital culture (Bacigalupe & Lambe, 2011; Stafford & Hillyer, 2012), have progressively become part of our everyday lives (Aponte, 2009; Bacigalupe & Lambe, 2011; Blinn-Pike, 2009; Correa, Hinsley, & Zúñiga, 2010; Igartua & Moral, 2012; Lanigan, 2009; Stern & Meser, 2009; Stafford & Hillyer, 2012; Zhong, 2013). About 20 years ago families were using face-to-face (FtF) was the central mode of communication (Stafford & Hillyer, 2012), besides the use of television, video home system and books, the meaning of social network was consistent with families' Christmas card list' (Coyne, Padilla-Walker, & Howard, 2013). Nowadays, the internet is an extension of broader social roles and interests in the offline world (Colley & Maltby, 2008), which can enhance the social lives of its users (Amichai-Hamburger & Hayat, 2011). According to the latest publication of the Eurostat (2014), in 2013, 79% of European Union households (28 countries) have computers with internet access. More specifically, this is true of 94% of the households in Norway, 88% in the U.K., 80% in Belgium, 70% in Spain and 62% in Portugal. Moreover, the percentage of daily frequency of internet use within the last year in these countries is about 85% in Norway, 78% in the U.K., 68% in Belgium, 54% in Spain and 48% in Portugal. In the U.S.A., according to a survey from the Pew Research Center's Internet & American Life Project (2014), 86% of American adults used the internet in 2013, 90% have a cell phone and 42% own a tablet computer. But it is among the youngest (12-17 years old) that the percentage of internet use is most widespread: 95% of American teenagers are online and 74% access the internet on cell phones, tablets, and other mobile devices.

In recent years, the advances and incorporation of ICTs into everyday life have potentially created new interaction scenarios and rearrangements in current family and social relational models, based on a network society (Aponte, 2009; Bacigalupe & Lambe, 2011; Lanigan, 2009; Stern & Messer, 2009; Stafford & Hillyer, 2012). However, if the impact of rapid technological advances and their immersion in the experiences of everyday life have become strong targets of investigation, the truth is that the role and impact on family dynamics is still at an early stage of research (Aponte, 2009; Coyne,

Bushman, & Nathanson, 2012; Şenyürekl & Detzner, 2009; Stafford & Hillyer, 2012; Williams & Merten, 2011).

2 Boundaries of the Review

2.1 Objectives

As a topic of research, it seems relevant to provide a comprehensive review of the existing literature in this domain. Thus, this review intends to explore the relationship between ICTs and family functioning, to provide a better understanding of the interaction between ICTs and family life, as well as to identify gaps in the current literature and to suggest directions for future research. More specifically, we aim to answer the following research questions:

RQ1: Which are the ICTs used by families?

RQ2: Which are the variables of family functioning most related to ICTs use?

RQ3: How do ICTs and family functioning interact?

2.2 Method

The review includes a search of the relevant research literature. Therefore, electronic academic databases were consulted (Proquest, Ovid, B-on, Wok, Ebsco and Emerald) and also both general and the scholarly search engines (Google and Google Scholar), using combinations of the words: “family”, “ICTs”, “family functioning”, “relations”, “internet”, and related terms (in English, Portuguese and Spanish). To complement this, research was done in books following the same criteria.

From the 257 references found in the initial search, only 45 met the inclusion criteria established for this study: (a) published between 1998 and 2013, (b) written in English, Portuguese, or Spanish, (c) including at least one ICTs, (d) and containing at least one variable of family functioning. A cut-off point of 15 years was made because there is little literature about this research topic before 2000. Most of the technology that exists today was not present within families 20 years ago, so references written before 1998 were excluded, as well as those papers not focusing on the interaction between family functioning and ICTs usage. Some monographs, conference presentations and poster (e.g., Gora, 2009) would be a nice addiction to this review but the methodology used in

this literature review was essentially based on peer review papers, filtered, easy to locate and accessible to the scientific community, enabling its possible replication among scholars.

The 45 references that met the inclusion criteria were selected based on a reading of the abstract and then by the analysis of the whole text, in terms of the following characteristics: authors and the year in which the research was published; country in which the studies were developed; research design, including sample size, ICTs and family functioning variables, method, instruments used, and principal results achieved. Table 1 gives an overview of all these studies and a discussion of them is presented below.

The papers selected are empirical studies, literature reviews, theoretical articles, case studies, and other types of articles. Regarding the empirical ones, we can find a wide range of aims, designs, samples, and variables considered. They total 33 empirical studies, conducted in different countries such as Australia, Belgium, China, India, Israel, Korea, Mexico, Spain, Portugal, the United Kingdom (U.K.), Turkey and the United States (U.S.), between 2002 and 2013. Most are cross-sectional designs (24) and less than half of these studies are longitudinal (9); the preference for quantitative methodologies is clear (22), followed by the qualitative (9) with mixed design being in the minority (2). The instruments mostly used were questionnaires (presence and online), some constructed specifically for the research topic in question (15), followed by interviews (10) conducted separately or with the whole family, and a combination of questionnaires and interviews or diaries (8). The theoretical articles add up to six of the references found and were written between 1999 and 2012, including the redefinition of concepts that emerged from the interaction between ICTs and everyday family life, and the synthesis of paradigmatic researches in this domain. At least, two case studies, three comments (guest editor's note) and one research syntheses was found.

Table 1

Summary of the articles included in the review

Author(s)	Year	Country	Sample	Method				Instruments
				Cr.	L.	Qn.	Ql.	
Aponte	2009	USA						Articles reviewed
Bacigalupe	2011	USA						Articles reviewed
Bacigalupe & Camara	2011	Spain						Articles reviewed; case studies
Bacigalupe & Lambe	2011	USA						Articles review; case study
Bartholomew et al.	2012	USA	N = 304 parents		x	x		Questionnaire
Blinn-Pike	2009	USA						Articles reviewed
Cardoso et al.	2008	PT	1) children / youth[a]; 2) 1353 children / youth	x			x	Questionnaire: 1) presence; 2) online
Chesley & Fox	2012	USA	N = 5.034 individuals		x	x		Interview
Child & Westermann	2013	USA	N=235 dyads of parent child	x		x		Questionnaires
Coyne, Busby, et al.	2012	USA	N = *1.333 heterosexual couples*	x		x		Questionnaire
Coyne, Bushman, et al.	2012	USA						Articles reviewed
Coyne et al.	2011	USA	N = 1.039 individuals in relationships	x		x		Questionnaire
Davies & Gentile	2012	USA	n = 527; n = 1.257 parents of children	x		x		Questionnaire
Devitt & Roker	2009	UK	N = 60 families, with youths	x			x	Interviews; diary
Ferguson et al.	2012	MEX	*N=165 youth and caregivers*		x	x		Interviews and questionnaires
Ganong et al.	2012	USA	*N = 49 divorced co parents*	x			x	Interviews
Gunuc & Dogan	2013	TR	N = 166 youths	x		x		Questionnaires
Haddon	2006	UK						Articles reviewed
Hertlein	2012	USA						Articles reviewed
Huisman et al.	2012	USA	N = 4 families	x			x	Interviews, questionnaires, TIC tracker

Kanter et al.	2012	USA	N = 118 dyads of parent child		x	x		Questionnaires
Kaur & Medury	2012	India	N = 346 dyads of parent child	x		x		Questionnaire
Kiesler	2000	USA	N = 237 (93 families)		x	x	x	Questionnaire; interviews
Lanigan	2009	USA						Sociotechnical model applied
Lee & Chae	2007	Korea	n = 222 children and parents	x		x		Questionnaire
Lenhart et al.	2008	USA	N = 1.102 youth and parents	x		x		Interviews
Liu et al.	2012	China	N = 3.778 individuals	x		x		Questionnaires
Livingstone	2007	UK	1) N = 2,281; 2) N = 2,417 parent/child		x	x		Questionnaire
Mesch	2003	Israel	N = 1.000 Israeli families with youths	x		x		Interviews
Mesch	2006	USA	n = 754 youths and parents	x		x		Interviews
Mesch	2006	Israel	n = 396 youths and their parents	x		x		Interviews
Mickus & Luz	2002	USA	N = 20 (pairs of residents and familiars)		x		x	Questionnaires
Nie	2001	USA						Review of four researches
PadillaWalker et al.	2012	USA	N = 453 families (parents/adolescents)		x	x		Interviews; questionnaire
Plowman et al.	2010	UK	n = 346 families and n = 24 case studies		x		x	Questionnaire; interviews; observation
Şenyürekl & Detzner	2009	USA	N = 30 Turkish families living in the U.S.	x			x	Interview
Schneider et al.	2012	USA	N = 35 spouses of cybersex users	x			x	Questionnaire online
Stafford & Hillyer	2012	USA						Articles reviewed
Stern & Messer	2009	USA	N = 2,000 households	x		x		Questionnaire
Stevenson	2011	UK	n = 570 adolescents and n = 34 (8 families)	x			x	Questionnaire; interview; observation; diary
Van Rompaey et al.	2002	B	1) N = 900 families; 2) N = 31 families	x		x	x	Interviews; questionnaire
Wajcman et al	2010	AU	N = 1.904 parents and children	x		x		Questionnaire; time diary
Wang et al.	2005	USA	N = 749 dyads of parent-children	x		x		Interview
Watt & White	1999	USA						Articles reviewed

Williams & Merten	2011	USA	1) N = 386; 2) N = 696 parents and child	x	x	Interviews

Notes. AU Australia; *MEX* Mexico; *USA* United States of America; *PT* Portugal; *UK* United Kingdom; *B* Belgium; *TR* Turkey; *1)* First study; *2)* Second study; *N* total sample; *n* sub sample;
Cr. cross-sectional; *L*. longitudinal; Q*n.* quantitative; Q*l.* qualitative.
[a] ongoing research at the time of publication, the sample was not provided.

3 ICTs, Individual Use and Impact on Family Functioning

3.1 Information and Communication Technologies (ICTs)

3.1.1 Attitudes toward ICTs. Initially, ICTs appeared in the literature associated with the professional sphere. Only recently has this concept been employed related to personal relationships (Coyne, Stockdale, Busby, Iverson, & Grant, 2011; Stafford & Hillyer, 2012), in part due to the development of another parallel research field, computer mediated communication (CMC). From the 1990s, the rapid technological development (e.g., virtual reality, multimedia systems) have been reflected in changes in social and family life (Aponte, 2009; Blinn-Pike, 2009), due to the domestication of these technologies by families (Haddon, 2006) and reciprocal technological developments, which progressively create equipment which is more sophisticated and adapted to the family context (Blinn-Pike, 2009). The domestication of ICTs is the process in which new and unfamiliar technologies are introduced in the family context and come under control of the users, raising feelings of excitement but also threat (Blinn-Pike, 2009; Haddon, 2006; Mesch, 2006a). This implies a "two way interaction in which the family members change the meaning and the impact of technologies and, in turn, the process of culture and family interactions are changed" (Blinn-Pike, 2009, p. 571). According to this theory, two directions are taken: the incorporation of ICTs with the technology becoming acceptable and familiar in everyday life of the household (e.g., relevance of the ICT's design, integration of the ICTs in family routines), and conversion, reflected by the attitudes that signalize their use (e.g., public exhibition, computer location at home to facilitate the monitoring of use; Haddon, 2006). In this context, Livingstone (2007) suggests two distinct levels of analysis: a pragmatic one, assessing the options of purchase and the location of the ICTs at home, and a symbolic one, translated by the expectations and rules of their use.

Concerning the acquisition process, Haddon (2006) referred that individuals invest with their own personal meanings and significance before purchasing ICTs. These include the expectation of the place they will find at home and their role in people's lives, which usually drives discussions about their purchase. Regarding this, Kaur and

Medury (2011) conducted a research in India trying to assess the impact that the internet has on adolescents' influence on family purchases. The results showed that adolescents in urban Indian households were significantly influenced by the internet and this influence was positively related to their role in family purchase decisions. Stevenson (2011) in the U.K., not only found that personal computers are essentially acquired for educational purposes as an extension of school activities at home, but also that the prior ICTs experiences by parents, their availability to become involved in ICTs activities with children and the desire to establish and maintain family rules, result in a complex set of family practices which leads the decisions around why and how ICTs is used in the home. Thus, to understand the adoption and use of ICTs by families, it is important to focus on the previous relations and interactions between household members (Coyne, Bushman, et al., 2012; Stevenson, 2011) and on the politics of the home that lie behind tensions on the one hand and the formation of areas of consensus on the other (Haddon, 2006).

Based on the domestication theory, Hertlein (2012) suggests a conceptual multitheoretical model about the role of ICTs in everyday couple and family life, which provides us with the most useful framework for understanding how the use of media by families might influence family functioning as a system. This model is informed by domestication theory and based on the integration of three theories: the family ecology perspective, which focuses on how the environment variables affect families, the structural-functional perspective, which addresses how families are organized to meet their needs, and the interaction-constructionist perspective, that focuses on how family members develop their relationships, communicate to each other and manage family rituals. It consists of a trilogy of reciprocal interdependencies between ecological influences (e.g., anonymity, accessibility), changes in the structure (e.g., redefinition of rules, roles and boundaries), and changes in the process (e.g., redefinition of intimacy, communication and disruption of rituals) of relationships. For example, rules around cell phone usage may result in changes to the way that adolescents interact with friends and family, which represents a structure to process changes.

Uses and gratifications theory, which is rooted in in the structural-functionalist systems approach, can provide a complementary explanation for the study of ICTs effects in this perspective (Coyne et al., 2013; Sherry, 2006). Essentially, the reasons behind the ICTs choices are made to fulfill personal and contextual needs (e.g.,

development of autonomy by adolescents, ensure children's safety by parents; Devitt & Roker, 2009) and in response to perceived problems (e.g., going out with friends seen as an unsafely situation by parents) and motivations. Thus, gratifications soughed from ICTs may lead different patterns of ICTs effects on both the individual and family level (e.g., freedom for children and safety for parents could result in better quality of parent/children relationship).

3.1.2 Types of ICTs and using patterns. In recent years, as a result of technological advances and the growing number of ICTs users, there has been an exponential increase in the connections and interactions established between network users (Stafford & Hillyer, 2012). The interconnectedness facilitated by mobile services and the dissemination of social networking sites (SNSs; Ellison & boyd, 2013) made the emergence of new patterns of technology use possible (Haythornthwaite, 2005; Houghton & Joinson, 2010; Stafford & Hillyer, 2012; Zhong, 2013). There seem to be differences between the traditional patterns of communication (e.g., face-to-face) and the new patterns, served by ICTs and characterized by the use of a plurality of media technology and the increased risk of addiction to it (Stern & Messer, 2009). Media multitasking, multicommunication, media multiplexity and perpetual connectivity are examples of these new ICTs patterns and represent revolutions in the modes of human relationships (Stafford & Hillyer, 2012). Whereas media multitasking describes the activity of performing multiple online media tasks during a specified time period (e.g., working or studying online, chatting with friends online, reading news; Zhong, 2013), multicommunication refers to interacting with multiple individuals simultaneously (e.g., managing a chat conversation while simultaneously updating a tweet on Twitter), and media multiplexity (Haythornthwaite, 2005) focuses on the diversity of means to interact with the same individual (e.g., a couple using mobile phones, videoconference and email to organize a weekend together). Multicommunication and media multiplexity both contribute to another phenomenon of the modern world: perpetual connectivity. This new pattern is related to the constant need to be contactable, it "is no longer a matter of going online, but being online" (Williams & Merten, 2011, p.150), visible for example in the incessant checking of one's email inbox or in the permanent status updating in social networking sites (SNSs).

According to Brandtzæg (2010), it is very difficult to understand user behavior because media usage is often dynamic and complex. Thus, rapid media evolution, the increasing access to a variety of new media, individual preferences and different lifestyles adopted are becoming important variables to take into consideration. In this context, the author suggested a unified Media-User Typology (MUT) which defines types by media behavior (e.g., non-users, socializers, advanced user) according to the level of frequency, the variety of use, the content/activity preferences and the media platform used. As an example, a socializer is characterized by a medium frequency and variety of use, with socializing activities, using SNSs, keeping in touch with friends, family and connecting with new acquaintances, in a less organized, spontaneous and flexible way.

When we look into families as a unit of analysis we realize that the difficulty in establishing patterns of ICTs use is even broader. Van Rompaey, Roe and Struys (2002), created a typology based on family ICTs possession: the traditional, characterized by low technological density (54% of the cases; e.g., television and a low number of audio systems), intermediate (31%; medium technological density, including more televisions and audio systems), and the multimedia, characterized by high technological density, including the possession of new technologies (15%; e.g., internet and email). However, besides the technological resources that the families have, the discussions about the role they assume in their lives and the amount of time they spend using them (Huisman, Catapano & Edwards, 2012), other variables may influence the selection of the ICTs and their pattern of use, such as: the family socioeconomic status (SES; Blinn-Pike, 2009; Brandtzæg, 2010; Correa et al., 2010; Livingstone, 2007; Mesch, 2003, 2006b; Nie, 2001; Plowman, McPake, & Stephen, 2010; Van Rompaey et al., 2002; Wang, Bianchi, & Raley, 2005), the geographical distance to the family members (Bacigalupe & Lambe, 2011; Şenyürekl &Detzner, 2009; Stern & Messer, 2009), the communication strategies established by the family (Devitt & Roker, 2009; Stern & Messer, 2009), the cultural differences (Chesley & Fox, 2012; Şenyürekl &Detzner, 2009), the satisfaction of needs (Coyne et al., 2013; Sherry, 2006) and the stage of the family life cycle (Bacigalupe, 2011; Bartholomew, Schoppe-Sullivan, Glassman & Dush, 2012; Coyne, Bushman, et al., 2012; Davies & Gentile, 2012; Lanigan, 2009; Mesch, 2006b; Watt & White, 1999).

Within families with children, these seem to be a powerful factor in internet acquisition and use (Van Rompaey et al., 2002), since personal computers are essentially

acquired by parents as an extension of school activities at home (Stevenson, 2011). In preschool they seem to prefer to use television (Huisman et al., 2012) and this pattern of television use seems to influence families to adopt more positive media habits (e.g., watch educational programs) in families in the earlier stages of their life cycle, with siblings and with larger age gaps in sibling spacing (Davies & Gentile, 2012).

Studies conducted in the stage of families with adolescents pointed to a change in their attitudes and values (Cardoso, Espanha, & Lapa, 2008; Bacigalupe & Camara, 2011). "Street culture" has been changed into "room culture" (Bacigalupe, 2011; Mesch, 2006b), where adolescents are isolated in their rooms playing and communicating with friends (Cardoso et al., 2008). The pattern of ICTs use seems to vary between email (Padilla-Walker, Coyne, & Fraser, 2012; Şenyürekl & Detzner, 2009), SNSs (Huisman et al., 2012; Padilla-Walker et al., 2012), video games (Cardoso et al., 2008; Ferguson, 2013; Ferguson, San Miguel, Garza, & Jerabeck, 2012; Lenhart et al., 2008; Sherry, 2006) and cell phone (Padilla-Walker et al., 2012; Wajcman, Rose, Brown, & Bittmann, 2010). However, more than identify the pattern of the ICTs used by youth, is important to understand the context in which they are used (e.g., room alone, in mobility) and the interactions (e.g., contact with strangers, game with their offline partners, text messages to parents regarding difficult subjects) that they form in order to understand adolescents (Bacigalupe & Camara, 2011): how they construct their identity, how they relate to each other's and establish a new culture different from the adulthood world. In this sequence, not only was a gender difference found in these patterns of use, since female practice seems confined to more online conversations and the male tendency is to play online video games (more often and for longer periods of time; Lenhart et al., 2008), but a supplement and extension of new ICTs technologies was also found in relation to traditional ones (e.g., the replacement of the landline phone call for online chats for females, and the decline of television use with the use of online videogames for males; Cardoso et al., 2008; Van Rompaey et al., 2002), being its use an important component of their social experience with repercussions in their interests and activities (e.g., engagement in civic activities; Lenhart et al., 2008).

In adulthood, Huisman, Catapano and Edwards (2012) found that adults seem to mostly use email and chats to interact and communicate with friends and extended family. More specifically, Chesley and Fox (2012) showed that women use email more

than men to communicate with family members. This study also suggests the existence of cultural differences in the use of ICTs, since Hispanics and African Americans reported a lower use of email compared to Caucasians. This fact seems to be justified by some ecological influences (e.g., access to ICTs, lack of confidence in the privacy policies of email) experienced by Hispanics and African Americans. Considering the stage of transition to parenthood, a longitudinal study by Bartholomew et al. (2012) showed that mothers used Facebook more than fathers and increased its use over that transition, as a result of higher levels of parenting stress.

The literature also shows that the patterns of communication adopted by families can vary according to other variables, such as the location of its members and the geographical distance to the family (Bacigalupe & Lambe, 2011; Devitt & Roker, 2009; Şenyürekl &Detzner, 2009; Stern & Messer, 2009). When distances are larger, there is an elevated use of email and cell phone (Stern & Messer, 2009), especially in transnational families, to maintain relationships over such distance and time (Şenyürekl &Detzner, 2009). In contrast, face-to-face communication and telephone calls are more often used when distances are smaller (Stern & Messer, 2009). According to Coyne, Stockdale, Busby, Iverson and Grant (2011) different forms of media are used within couple relationships, cell phones in conversations or texting messages being those primarily used to express affection to each other, in an easy way throughout the day. In addition, relationship satisfaction seems not to predict specific use of media but does predict several reasons for media use (e.g., connecting simultaneously with others and partner, discussing serious issues). Devitt and Roker (2009) argued that cell phones seem to have changed some aspects of family functioning as well as relationships, in a positive way. This device is seen as a keyway for modern families to keep in touch (e.g., make plans in real time) and ensure children's safety (e.g., means of communication in emergency situations). Concerning the use of cell phones, parents would rather talk (and listen to their children's voice) while their children showed a preference for text messages, especially regarding difficult subjects. According to Lanigan (2009), this equipment allows families to coordinate daily activities in real time, and unlike a landline, it exhibits a pattern of personal use. Although this type of technology has been associated with promoting family communication, this author notes that in contrast, it

also has the potential to reduce the communication content or context (e.g., lack of nonverbal signals in a voice call).

3.2 Family Functioning and ICTs

Family functioning, understood as a process in which members interact with each other to meet basic needs, make decisions, establish rules, and define goals, contributes simultaneously to individual and family development (Lanigan, 2009). Thus, according to the Multitheoretical model of Hertlein (2012), the introduction of ICTs in the family context (ecological influence) can change (the structure and the process of) family dynamics, leading to (re)adaptations to the arrival of this new element (Sotero et al., 2011). Focusing family functioning variables due to the ICTs use in light of the uses and gratifications theory may help in understanding some the reasons behind ICTs use and the control that individuals and families have in manage them, rather than being passive users. Research focused on this topic has highlighted particular aspects of family functioning such as communication, cohesion, roles, rules, intergenerational conflicts and boundaries. Thus, the main studies associated with these variables are presented next.

3.2.1 Family communication. Due to the proliferation of new technologies the number of ways in which it is possible to communicate has undergone exponential growth in recent years (Stern & Messer, 2009). Traditional forms of communication such as face-to-face or using landlines, have today assumed new technological formats to include email and cell phones (Coyne, Bushman, et al., 2012; Stern & Messer, 2009), for example. The daily management of family activities in real time through mobile devices (Devitt & Roker, 2009; Hertlein, 2012; Lanigan, 2009; Stern & Messer, 2009; Watt & White, 1999), such as paying bills online or changing appointments by phone, tends to induce feelings of safety for those who have these technologies (Devitt & Roker, 2009). Furthermore, ICTs release the family from time constraints and allow, through a wide range of devices (Stern & Messer, 2009; Stafford & Hillyer, 2012), the maintenance of family relations. Not only have ICTs contributed decisively to the maintenance of these relations (Aponte, 2009; Bacigalupe, 2011; Bacigalupe & Lambe, 2011; Şenyürekl & Detzner, 2009; Stafford & Hillyer, 2012), but they have also made possible the

development of new communication patterns, worldwide, in real time and at a relatively low cost of use (Lanigan, 2009; Stern & Messer, 2009). As an example, we can see the positive impact that ICTs have had on transnational families: changing from expensive forms of communication to adopt new, low cost technologies, which have enabled the maintenance and (re)creation of family bonds, despite geographical distance (Bacigalupe & Lambe, 2011), and in effective co-parenting relationships after divorce, making easier for parents to plan and make conjoint decisions about their children (Ganong, Coleman, Feistman, Jamison, & Markham, 2012).

However, the emergence of new technologies and patterns of communication has also facilitated the exposure of users to a variety of risks. Particular using patterns as multicommunication and perpetual connectivity (Stafford & Hillyer, 2012), visible for example in the explosion of friends connected in SNSs and information shared worldwide (Bacigalupe & Camera, 2011), can lead to situations of loss of family control on virtual interactions (Mesch, 2006a, 2006b; Stern & Messer, 2009). If these virtual sets tend to facilitate the maintenance of family relationships, little has been investigated about their impact on their establishment and rupture (Stafford & Hillyer, 2012). Therefore, some authors recognize that ICTs can have a negative influence on communication, impacting on the quality of family relationships (Nie, 2001; Watt & White, 1999). For example, the disconnection between verbal and nonverbal signals can result in misunderstanding or family members in the same house becoming isolated from each other instead of establishing personal connections (Cardoso et al., 2008; Huisman et al., 2012; Mesch, 2006b; Watt & White, 1999; Williams & Merten, 2011). Nie (2001) has become a paradigmatic reference for the concept of inelasticity of time, reiterating that the more time individuals spend in activities involving ICTs, the lower the amount of time devoted to other activities (e.g., outdoor activities). In 2001, in the U.S., the same author conducted a study on the influence of the internet on the quantity and quality of communication and interpersonal relationships. He concluded that internet users already had a competitive advantage compared to non-users (e.g., younger; higher degree of social connectivity), so they did not become more sociable and may actually reduce interpersonal interaction and communication.

3.2.2 Family cohesion. Family cohesion conceptualized as the emotional bonding shared by family members, has proved to be a variable with contradictory

results when analyzed under the influence of ICTs. Some studies report that ICTs tend to increase the time spent as a family (Chesley & Fox, 2012; Devitt & Roker, 2009; Lanigan, 2009; Plowman et al., 2010) and strengthen family bonds (Bacigalupe & Lambe, 2011; Chesley & Fox, 2012; Kanter, Afifi, & Robbins, 2012; Lanigan, 2009; Stern & Messer, 2009; Stevenson, 2011; Bu Zhong, 2013), improving family communication and increasing intimacy among members (Şenyürekl & Detzner, 2009; Wajcman, Bittmann, & Brown, 2008; Wang et al., 2005). This is evident through sharing online activities between parents and children (Padilla-Walker, Coyne, & Fraser, 2012; Stevenson, 2011; Williams & Merten, 2011) and current daily management activities using ICTs (Devitt & Roker, 2009; Hertlein, 2012; Lanigan, 2009; Stern & Messer, 2009; Watt & White, 1999).

About the contextual complexity of ICTs interactions in family life, Lanigan (2009) applies a sociotechnological model as an analysis grid to a research conducted by the author on the perception of the impact of the use of personal computers on family relationships. The results suggest that the more time families spend using these ICTs, the higher the level of cohesion, adaptability and communication revealed by the family. Similarly, in Chesley and Fox's (2012) research, most women stated a positive effect on family relationships, with a reinforcement of the bonds besides the time saved in family communication. The results obtained by Stevenson (2011) also point to the positive impact of ICTs in terms of previous family relationships, adding some variables that mediate the process of adjustment of households to ICTs, including the availability of parents to engage in activities with their children and the desire to establish and maintain family rules. In addition, adolescents spending time in family activities such as eating meals, chatting, shopping and, especially with their mothers, had a higher level of perceived social support and a lower level of internet addiction (Gunuc & Dogan, 2013).

Bacigalupe (2011) argues that the quick adoption of ICTs by households may respond to a deep cultural need to strengthen and maintain family intimacy and community bonds, especially with transnational families. Despite geographical distance, ICTs use can enable any family to be virtually present (Aponte, 2009; Stern & Messer, 2009; Mickus & Luz, 2002; Stafford & Hillyer, 2012), and so ICTs are a "splendid opportunity to maintain legacies, create new memories and to establish a coherent

identity and continuity for family members" (Bacigalupe & Lambe, 2011, p. 22) at a low cost.

Partially supporting this hypothesis and focused on a distinct sample, Mikus and Luz (2002) conducted an investigation to test the feasibility of using low cost videophones on the frequency and quality of communication between nursing home residents and their families. The results pointed out that videophones can be used successfully for nursing home residents, leading to more satisfying social interactions, regardless of distance. The accessibility to this type of technology offers the potential to reduce isolation among them and their families.

Nevertheless, some empirical evidence points to mixed effects (Williams & Merten, 2011) or even in the opposite direction, making a negative association with the frequency of use of new technologies and the perception of family cohesion (Mesch, 2003, 2006b). Williams and Merten (2011) in two studies explored the use of several technologies for adolescents and their parents in order to verify the impact of these technologies on the family connection and parent-child relational dynamics. Thus, on the one hand, ICTs are perceived by parents as facilitating family closeness and increasing of the quality of communication. On the other hand, the large amount of technological equipment and high frequency of use seems to be related to a reduction of family time and intimacy between family members, leading to the isolation of those who live in the same house. In 2003, Mesch, exploring the relationship between the daily use of the internet, the amount of family time and the perception of quality of family relationships, concluded that the greater the frequency of internet use by young people, the lower the perception of relational quality with their parents. Parent-child closeness is due mainly to family characteristics and opportunities for interaction (e.g., surfing the internet as a new joint activity for families). However, he adds that this negative relationship was not due to the frequency of internet use *per se*, but the existence of another variable: the type of online activity. Three years later, this author confirmed that the frequency of teenagers' internet use is negatively associated with family time and positively associated with family conflicts, creating the perception of a decline in family cohesion. He also found different effects due to the type of internet use. Thus, if the purpose is educational, the quality of adolescent-parent relationship

increases, whereas if the purpose is entertainment it does not seem to have any relation but it may raise intergenerational conflicts.

To note that an apparent contrast appears when these results are seen in the perspective of the family life cycle and in families living together or geographically separated. Thus, in families with children in school living in the same house seems that ICTs may increase family cohesion (e.g., Livingstone, 2007; Plowman et al., 2010; Stevenson, 2011). However, in families with adolescents living under the same roof results became more inconsistent, ranging from a higher social support (e.g., Gunuc & Dogan, 2013) to a lower level of family cohesion (e.g., Mesch, 2003; 2006b) and progressive isolation of family members in the same house (e.g., Cardoso et al., 2008; Williams & Merten, 2011). In families living geographically separated, in empty nest stage of the family life cycle (e.g., home resident member; Mikus and Luz, 2002) or in a transnational situation (e.g., Bacigalupe & Lambe, 2011; Chesley & Fox, 2012), seem that ICTs are an important key in maintain preexisting relationships and strength family bonds. In sum, families seem to experience different levels of cohesion associated with the same ICTs and activity, according to the stage of the family life cycle they are at (Watt & White, 1999).

3.2.3 Family roles, rules and intergenerational conflicts. Some research published about the use of new technologies focuses on the reduction of time spent as a family (Huisman et al., 2012; Mesch, 2003, 2006b; Nie, 2001), arguing that the use of ICTs does not make people more sociable (Nie, 2001), and tends to facilitate the occurrence of couple (Coyne et al., 2011) and intergenerational conflicts (Bacigalupe & Camera, 2011; Huisman et al., 2012; Kiesler, Zdaniuk, Lundmark, & Kraut, 2000; Livingstone, 2007; Mesch, 2003, 2006a , 2006b; Van Rompaey et al., 2002), as well as hindering the exercise of parenting (Huisman et al., 2012).

A study conducted by Coyne et al. (2012), assessed how playing video games could influence conflict in couple relationships. The results show that the amount of time men spent playing video games led to conflicts about the media, which were related to physical and relational aggression. Different results were found by Ferguson, et al. (2012), in a longitudinal research with young couples, indicating that exposure to video games violence was not related to negative outcomes, being depression, antisocial personality traits, exposure to family violence and peer influences the best predictors of

aggression. To be noted that this issue of video game violence influencing aggression is a hotly contested area with two positions: one, which highlights the negative effects and the other more skeptical (Fergurson, 2013).

In response to the discrepancy of the results found in family time studies, Lee and Chae (2007) tried to clarify family and communication time concepts. They argued that family time involves both active and passive time (in which the family does nothing), while the communication time includes only the active family time. Thus, they conducted an investigation in Korea, operationalizing these two variables separately, and concluded that the total time that families spend on internet use is associated with a decrease in family time, but not in communication time. The decrease is due to online activity performed by children. In the case of educational activities for which the technology was acquired, there is no decrease in this variable. However, for entertainment activities (e.g., online games), there is a decrease in communication time. Integrating the type of activity performed with ICTs and the family time, other authors (Huisman et al., 2012; Mesch, 2006a; Mesch, 2006b) have reached similar results. In fact, as well as the use of ICTs by children for entertainment purposes being seen as decreasing the family time, it is also strongly associated with the existence of intergenerational conflicts.

Families are characterized by a hierarchy of authority. When new information enters the family system, it transforms into new roles or expertise alongside the existing ones, and may lead to relational changes (Mesch, 2006a;Watt & White, 1999). For example, the introduction of the computer has the potential to change this hierarchy, with the adolescent becoming a technological expert who monopolizes the equipment and from whom the other members of the family must request help (Watt & White, 1999). This adolescent, usually male, tend to adopt the role of a guru in computers, a fact that creates discomfort in adults not familiar with this technology and leads to family conflicts (Kiesler et al., 2000). It seems to corroborate the hypothesis of the redefinition of family roles. ICTs have the potential to change family patterns of interaction due to the differentiation of roles and levels of expertise, and when a family guru emerges, a new dynamic is introduced into families: the adolescent's role at the interface of the family and the digital world (Kiesler et al., 2000), which often culminates in conflict situations (Mesch, 2006a). According to Mesch (2006a), the greatest

experiences of conflict in families seem to be those where a young computer expert is distinguished from the other family members or in which parents show more concern about the potential negative effects of internet use. In addition, the focus of discussion and conflict due to internet access and use seem to be not only between parents and children, but also between siblings (Van Rompaey et al., 2002).

Livingstone (2007) considers other variables behind the conflict, arguing that these situations are caused more by issues of independence, responsibility and costs than by the ICTs use. However, Bacigalupe draws attention to the fact that the tasks of adolescence such as negotiation of autonomy and independence, may became a central issue of teen technology interactions (Bacigalupe, 2011).

The empirical evidence appears to point to an enhancement of the development of technological abilities by young people which tends to increase the digital gap between generations (Bacigalupe & Camera, 2011; Lanigan, 2009; Mesch, 2006a), and to deflect parental authority, by questioning rules and values that they try to transmit (Bacigalupe & Camera, 2011; Haddon, 2006; Huisman et al., 2012; Mesch, 2006a; Stevenson, 2011). This puts them in the dilemma of parenting without a reference model regarding ICTs, as these devices have emerged too late in their lives (Plowman et al., 2010).

The internet poses multiple challenges to parents who see it as a source of funds for the development of their children but, at the same time, want to protect them from inappropriate content. Thus, they resort to various educational strategies (Lenhart et al., 2008) ranging from restricting access through specific software and checking the browsing history, to setting up rules, or negotiating its use.

Wang et al. (2005) studied parental monitoring of internet use by children, concluding that parents regulate internet use by defining rules and checking visited sites. An important fact is the high discrepancy between informants regarding the monitoring (Wang et al., 2005). This may be due to the fact that “parents and adolescents do not share the same definition of monitoring, nor do they share similar experiences of or sensitivity to parents’ monitoring behaviors” (Williams & Merten, 2011, p. 153). However, when parental norms are consistent with the children’s internet use, the risk of developing problems with internet use seems to be reduced (Liu, Fang, Deng, & Zhang, 2012).

To note that, the most of the studies related to this topic are with families with children at school and or adolescents, with variations over the family life cycle (e.g., childrens' internet use and family rules; Mesch, 2006b). Divided between restriction and access to ICTs, parents who participated in studies by Livingstone (2007) and Williams and Merten (2011) reported a major use of trading strategies of family rules and roles. The first author adds that more than the potential effect of ICTs is the progressive change of parent-child relationships that regulates the familiar patterns of use.

3.2.4 Family boundaries. ICTs have the potential to modify the permeability of family boundaries due to the change of the flow of information. If on the one hand, the family gets unrestricted access to a diversity of information unprecedented in our history, on the other hand they become more exposed, blending external world with family environments (Lanigan, 2009; Mesch, 2006b; Stafford & Hillyer, 2012). With this perspective in mind, Mesch (2006b) uses the metaphor of "backstage" and "front stage" to explain the dilution of family boundaries. The backstage might be seen as the house, where the family creates its identity and where members can express their intimacy and feelings. The front stage could be the public sphere where individuals' behavior is framed according to the expectations, roles and rules that society imposes to them. Thus, boundaries between the family environment and the external world are relevant and necessary, but are being blurred by the domestic use of ICTs. Also through the use of the boundary metaphor, Communication Privacy Management theory (CPM) illustrates the way people manage their privacy, personally and in their relationships (Petronio, Caughlin, Braithwaite, & Baxter, 2006). Recently, CPM has been used to explore how parents and children negotiate rules and boundaries using ICTs, such as Facebook (Child & Westermann, 2013). Following this idea and as a consequence of the change of habits and family routines (Haddon, 2006; Hertlein, 2012; Mesch, 2003, 2006a, 2006b), in some families there occurs a progressive blurring of the boundaries of family and work. If the pattern applicant is that children and parents leave the house every day to go to school and work, the invasion of family life into the workplace and the work in the sphere of family life, seems to become increasingly frequent (Lanigan, 2009; Stafford & Hillyer, 2012; Wajcman, et al., 2008; Wajcman et al., 2010; Williams & Merten, 2011). Children doing homework on a personal computer (Stevenson, 2011), parents who start to work from home using ICTs (Huisman et al., 2012; Stafford & Hillyer,

2012) and work invading the home through the internet (Wajcman et al., 2010) and cell phones (Wajcman et al, 2008), are just a few examples. Based on an Australian sample, research shows that the internet is being used for personal purposes during work time to a greater extent than for work purposes during non-work time. And surprisingly, the use of the internet for work purposes at home can assist in better work family balance (Wajcman et al., 2010). Furthermore, rather than being primarily a tool of work extension, the main purpose of mobile phone calls seems to be the maintenance of connections with family and friends (Wajcman et al., 2008), which reveals that users are able to manage the technology such that its technical capability to permeate the temporal division between work and home seems to be controlled. However, the potential weakening of family boundaries may also increase the exposure of households to vulnerabilities (Lanigan, 2009; Hertlein, 2012) and lead families into risky situations such as lack of privacy and of family safety (Davies & Gentile, 2012; Lanigan, 2009; Mesch, 2006b; Stafford & Hillyer, 2012; Williams & Merten, 2011). Examples of this are contact with inappropriate content, happy slapping, child grooming (Bacigalupe & Lambe, 2011; Cardoso et al., 2008; Devitt & Roker, 2009) and involvement in situations of loss of control over virtual interactions (Liu et al., 2012; Stafford & Hillyer, 2012; Stern & Messer, 2009), such as cybersex (Schneider, Weiss, & Samenow, 2012).

Hertlein (2012), in her multitheoretical model, contemplates the existence of ecological influences that act as potential vulnerabilities for families and couples that use ICTs: anonymity, accessibility, affordability, approximation, acceptability, accommodation, and ambiguity. In this context of risks and vulnerabilities to which new technologies can expose families, Bacigalupe and Lambe (2011) state that the literature tends to be alarmist, pointing out the negative effects of the use of ICTs and relating them to negative and problematic behaviors (e.g., cyber bullying, online infidelity). According to Moral Panic Theory, societies tend to construct panics over certain phenomena and exaggerate their impact to purported problems in the society, being ICTs an easy target of moral panics (Ferguson, 2012; 2013). In this context, two major consequence may occur the neglection of a perspective focused on the potential strengthening of family bonds (Bacigaupe & Lambe, 2011) removing from families the power to make their decisions about how to incorporate the technology into to their lives, and the potential to harm the scientific community, influencing the scientific

process to find consistent results to support the shared fears (Ferguson, 2012). Exceptions to this rule are, for example, the studies of Child and Westermann (2013), Kanter, Afifi, and Robbins (2012), Plowman et al. (2010), Wajcman et al. (2008) and Rocker and Devitt (2009). In the first two, parents made a Facebook friend request to their young-adult children. In both, children did not experience a privacy invasion when contemplating parental connections on Facebook and in the cases in which they had a more conflicted relationship prior to the parent joining Facebook, the parent's presence on Facebook also enhanced the child's closeness with the parent. In the latter study, families reported that the use of cell phones changed particular aspects of family relationships, pointing out more positive effects (e.g., safety and independence feelings) rather than negative ones (e.g., happy slapping). To be highlighted is that these studies report concerns from parents regarding the use of technology. But the main difference is that in these ones, instead of thinking about the ICTs as a threat or an intrusion, these parents emphasized the previous quality of their relationships, their values, their culture, their control over ICTs use and the development of adaptive attitudes to cope with the risks to which ICTs expose them.

4 Conclusion

This review shows that ICTs introduce qualitative changes in the way that members of today's families interact with each other (Amichai-Hamburger & Hayat, 2011; Aponte, 2009; Cardoso et al., 2008; Hertlein, 2012; Lanigan, 2009; Stafford & Hillyer, 2012). However, the results are inconsistent. Mostly, researches focus on different ICTs (e.g., cell phone, videoconference) emphasizing partial variables of family functioning (e.g., cohesion, conflict) and are limited to specific stages of the family life cycle, such as couples (e.g., Bartholomew et al., 2012; Ganong et al., 2012; Schneider et al., 2012), families with children in school (e.g., Chesley & Fox, 2012; Lee & Chae, 2007) and families with adolescent children (e.g., Bacigalupe & Camera, 2011;Devitt & Roker, 2009; Mesch, 2003). In addition, besides to the five domains identified in this review another dimension transversal to these domains can be underlined: the stage of the family life cycle.

As reflected in the literature reviewed, the globalism of this phenomenon has triggered different directions of research around the world, allowing the integration of

transnational realities and multicultural studies (e.g., Bacigalupe & Lambe, 2011; Chesley & Fox, 2012; Liu et al., 2012; Şenyürekl & Detzner, 2009). In this review different uses of ICTs are evidenced (e.g., education, entertainment), distinct meanings associated with these technologies are highlighted (e.g., work tool, communication vehicle) and hypothetical risks posed by their use are underlined (e.g., cyber stalking), as well as the strategies used by parents to address the negative influences that ICTs potentially bring into the family (e.g., redefining rules, installing monitoring software).

The advances and incorporation of the ICTs into families' everyday life has earned a place of prominence in the research field. This is clear from the rising number of studies, especially empirical researches, addressing the relation of ICTs with family functioning in the last years, compared with its prevalence a decade and a half ago. Since this whole evolution of scientific literature on this subject is limited to this period, this systematic review was limited to publications from between 1998 and 2013.

Despite the growing scientific literature on this topic, some gaps were found. There is a lack of consensus on the prevalence of positive, negative or mixed aspects in the influence that ICTs have on families. We think that it is in part due to the diversity and non-standardization of instruments used, the differentiated type of samples considered, the variety of study designs, the multiplicity of variables considered in the studies and their differentiated operationalization, which allows us to get a kaleidoscopic view of this relation, hampering comparisons between them or achievement of consistent results. Besides that, in the gradually media-saturated environment in which we live today, how the media use of families differs according to the developmental stage seems an important gap in the literature.

Despite the effort put into making the research review on the subject as exhaustive as possible, it has some limitations. We recognize that it was impossible to include all of the existing literature as this has been limited to databases, search terms and languages mentioned. Furthermore, some of the studies presented appear somewhat outdated compared to the continuous technological developments, but were kept due to their methodological relevance or conceptual interest. Moreover, according to the Multitheoretical model of Hertlein (2012) there are some topics derived from our review which overlap in the structure and process of the relationships because they can be situated in more than one of the three elements.

Some studies suggest that ICTs are becoming a central dimension in the various stages of the family life cycle (e.g., Bacigalupe, 2011; Hertlein, 2012; Gora, 2009; Watt & White, 1999), with the individuals and families' adoption of these technologies varying not only according to their own characteristics (Aponte, 2009; Cardoso et al., 2008; Chesley & Fox, 2012; Huisman et al., 2012; Stern & Messer, 2009; Van Rompaey et al., 2002), but also due to their development stage (Bacigalupe, 2011; Coyne, Bushman, et al., 2012; Davies & Gentile, 2012; Lanigan, 2009; Mesch, 2006b), whereas the same ICTs seems to have different impact on the family functioning variable in accordance to the specific stage of the family life cycle (e.g., personal computer use in family cohesion; Gora, 2009; Watt & White, 1999)

The Multitheoretical model of Hertlein (2012) "highlights the recursive nature of influence of technologies on families through discussing how family processes are adopted and integrated by families" (Hertlein, 2012, p. 376). According to this model and with the uses and gratifications theory in mind, by examining the different interactions between technologies and family members, is possible to gain some insights about family functioning. For instance, the multiple relationships between the ecological influences, the rearrangements in the structure and in the process of families, may allow us to have a better understanding of what is signalized as adaptive or problematic to each family. With the inclusion of ICTs in everyday life, on the one hand, and the dialectic of ensuring family identity and promoting the autonomy of its elements on the other, the challenge is put to families of the 21st century of integrating the characteristics of a network society into their relations: flexibility, autonomy and adaptability (Bacigalupe, 2011; Cardoso et al., 2008; Lanigan, 2009), which at least will result in the permanent and reciprocal update of familiar and technological processes, across the different stages of the family life cycle. The construction of "folk devils" for purported problems in society and the policy of spreading fear among families seems to transform several ICTs in new targets of moral panics (Ferguson, 2012) and sheds more confusion in the midst of the families, interfering with their own ability to manage the arrival of this "new family member": ICTs (Bacigalupe & Lambe, 2011; Sotero et al., 2011). Considering this point of view, it is important that the scientific community can identify moral panics to promote research not only in the way to corroborate the findings supported by the fears, but also to be permeable to its falsification. Consequently, publish the results in

the scientific community and share them with the community in large scale (e.g., social networking sites) and digital inclusion policies (e.g., parenting programs; primary prevention programs for children), providing not only clear information about risks factors and damage prevention strategies (e.g., choice of suitable locations for placing ICTs; install monitoring software), but also about their advantages and potentialities (e.g., strength family bonds; current daily management activities), for families to find ways to actively make decisions about how to incorporate ICTs into their lives and (re)adapt to these permanent changes by themselves. Based on the above, future research should seek to: (a) use standardized measurement instruments, enabling the replication and the comparison of results, (b) favor longitudinal and mixed methods (quantitative/qualitative) in order to enable a wider and deeper understanding of this interaction, (c) expand the focus of analysis at the different stages of the family life cycle, explore the dimensions of family functioning and the types of technology most used in each stage, and (d) achieve psychosocial and clinical implications which are better adjusted to the influence of ICTs on family functioning, allowing the revitalization of the families' own competencies. This way, the relation between ICTs and family functioning seems to be, among many others, just one more challenge that can test each family in its creative development.

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Information and communication technologies and family: Patterns of use, life cycle and family dynamics

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Introduction

Information and communication technologies (ICTs) broadly designate hardware devices (e.g., computers, smartphones, webcams) as well as software and applications used on these devices (e.g., email, videoconferencing, online social networks) which underpin digital culture [1,2]. Given the exponential growth in the use of these resources over the last two decades, ICTs nowadays represent an integrative part of contemporary family life [2,3]. According to Eurostat's last publication [4], 81% of European households had computers with internet access in 2014. This is particularly true for 93% of the households in Norway, 90% in the U.K., 74% in Spain and 65% in Portugal. Regarding the USA, 87% of adults used the internet in 2014 [5]. More recent data indicate that 92% American adults have a cell phone, 68% have a smartphone and 45% have a tablet computer in 2015 [6].

Naturally, the rapid incorporation of ICTs into families' lives has created new interactions scenarios as well as rearrangements in current family relational patterns [1,3]. As a result, the interface between ICTs and family dynamics arises as a prominent topic of research. Thus, new and important questions are raised, such as: how are families dealing with the ubiquitous integration of ICTs on their lives? How do ICTs and family dynamics interact? What are the implications associated with this interaction? This paper provides a note about a recent literature review of existing literature on the topic [7] and then presents some specific implications and suggestions to be integrated into future studies in the field of ICTs and family systems.

The interface between ICTs and Family dynamics: What we already know

Aiming to provide insight into the relationship of ICTs and family dynamics, Carvalho, Francisco and Relvas [7] conducted a literature review of the literature on this topic over the last 15 years. Forty-five papers including at least one ICT- and one family functioning-related variables were reviewed. The findings suggested that a consensus on the prevalence of positive, negative or mixed aspects of the influence of ICTs on family lives is yet to be reached. This is valid concerning different aspects of family functioning identified in the review such as communication, cohesion, roles, rules, intergenerational conflicts and boundaries. Some results supporting this conclusion will be briefly presented next.

The interconnectedness facilitated by mobile services and social networking sites [8] potentiates the emergence of new patterns of technology use (e.g., media multitasking, perpetual connectivity) [2,3,9]. However, whereas some studies have suggested that these revolutions in human communication can lead to disruptions in family routine [10], loss of family control over virtual interactions [10,11,15], as well as over boundaries between the private and public spheres [2,9,11,12], other studies offered more optimistic results. In fact, the adoption of these new patterns of technology use was also found to simplify the current daily management activities [13,14,15] and the maintenance of family relations despite geographical distance [1], especially in transnational families, which in turn facilitates the assurance of the family identity by a virtual presence in real time and at a low cost of use [1,15].

In addition, ICTs were found to increase the time spent as a family [1,15], the intimacy among members [16], and also to strengthen family bonds [1,2,15]. Contrastingly, another subset of studies suggested that ICTs reduce family time and lead to intergenerational conflicts due to children's use of ICTs for entertainment purposes and to the room culture phenomenon [10]. This term refers to situations in which children isolate themselves in their rooms connecting with friends instead of spending time with their families. Furthermore, the rapid development of technological abilities by adolescents was found to intensify the intergenerational digital gap [10,17,18]. In this scenario, parental authority might be deflected to the children, creating space for questioning of family rules, boundaries and values [10,12].

Gaps between ICTs and family dynamics relationship: what we do not know yet

Overall, this research synthesis [7] underscored that ICTs introduce qualitative changes in the way that members of today's families interact with each other. However, the literature reviewed is revealed to be not only inconsistent, but also scarce and particularly heterogeneous. Studies focused on different ICTs (e.g., smart-phone, videoconference, instant messaging), partial variables of family functioning (e.g., cohesion, conflict) and different activities conducted with ICTs (e.g., meeting people, paying bills, communicating with family members). In addition, the use of non-standard instruments and different methodologies (e.g., questionnaire, interview, case study)

was common. Finally, the existing literature on the topic of ICTs and family dynamics is limited to specific stages of the family life cycle, such as families with children in school and families with adolescent children. More importantly, some studies have suggested that ICTs might have different impacts on family life according to the specific stage of the family life cycle (e.g., couples in romantic long distance relationships, families with children, couples in the empty nest stage [14,19,20,21]). Notably, these data might partially explain the diversity of findings provided by this review.

Future directions: how can scientific knowledge progress in this research field?

Recognizing the scarcity, gaps and caveats among the literature on ICTs and family dynamics, advancing scientific knowledge on this subject is taking on substantial relevance. This assumes even more importance as some authors of recent studies, given the greater adoption of these resources by families, have considered ICTs a new family subsystem [1,18]. Nonetheless, in order to achieve this goal, it is crucial to expand the focus of analysis: identifying the diversity of ICT use, assessing different dimensions of the family dynamics (not only family functioning variables) and including the whole-family system, addressing how the interaction of ICTs and family dynamics varies according to the families' stage of life. In other words, drawing upon the conclusions of the research synthesis presented before, future studies should provide answers to the following key current research questions on the field:

RQ1: How are families using ICTs (in each stage of the family life cycle)?

RQ2: Are the patterns of ICT use associated with different perceptions of family dynamics (in each stage of the family life cycle)?

RQ3: Does the relationship between ICTs and family dynamics change in according to the stage of the family life cycle?

Aiming to respond to these global questions, an investigation is being conducted in Portugal, stemming directly from the presented research synthesis. Key aspects of this study will be briefly described next, since it might shed some light on possibilities for future research.

First, the study aims to identify patterns of individual use of ICTs (considering the type, variety, frequency, activity and contexts of use) and verify if socio-demographic

characteristics (e.g., sex, socioeconomic status, education level) and the stage of the family life cycle influenced those patterns. In order to accomplish this goal, Emerging Technologies & Families Survey (SEFT/ETEF©); [22] will be administered to the study participants. This instrument, which assesses how family clinicians construe the impact of ICTs in the clinical context, is currently being adapted to the general population, thus allowing a significant step in the state of current research.

As highlighted before [7], it is of highly relevant and necessary to use validated and standardised instruments. Thus, future studies should address this issue carefully. Second, the relationship between the patterns of individual of ICT use and individual perceptions of the family dynamics will be assessed in this study considering not only some variables of the family dynamics (e.g., quality of life, routines and family rituals), but also each stage of the family life cycle (couple; family with young children/at school; family with adolescents; family with adult children/empty nest; [23]). The final goal of the study is then to create and test a comprehensive model of the relationship between ICTs and family dynamics, never neglecting the potential moderator of this interaction: the family life cycle.

Conclusion

Regardless of the rapid incorporation of ICTs into families' experiences of everyday life, research addressing the role and impact of ICTs on families' dynamics is still at an early stage of development. Based on a recent published literature review [7], particular gaps in this body of research were highlighted. Then, the main cornerstones of a current research were briefly presented, pretending to delineate some guidelines to be considered in further research worldwide.

Advances on the scientific development of this research field are highly necessary and valued, as it might inform the development of preventive interventional strategies aimed at families (focusing not only on risks of the ICT use but also on enhancing a positive integration of these resources into everyday family lives) and also draw implications for the general clinical practice. Further, scientific knowledge on this issue could help and advise the development and management of digital inclusion policies, optimizing the potential of ICTs. These will enable progress to be fostered and families'

quality of life enhanced, as promoted by the Digital Agenda for Europe (DAE), included in the Europe 2020 Strategy (24).

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Capítulo 2 | Como são utilizadas as TIC?

Caracterização da sua utilização e do impacto na vida familiar dos Portugueses

Artigo 3 - *Portuguese families in a digital world: Developing an instrument to measure the use and impact of technology*

Portuguese families in a digital world: Developing an instrument to measure the use and impact of technology

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Abstract

Digital technologies have progressively become part of everyday family lives, creating several changes in family dynamics. Despite the growing literature in this research field, the absence of an instrument for measuring its impact in the family context in the general population suggests that more in-depth research is warranted. This study aimed to create an instrument to characterise individual ICTs use and the perception of its influence in the family context. A sample of 950 participants (12-81 years; *M* = 38.4 years; 65.6% female) completed the Information and Communication Technologies Use Questionnaire (QUTIC) and a socio-demographic questionnaire. Results revealed three profiles according to the ICTs used: Non-users, Instrumental-Socializer/Entertainment users, and Advanced users. The Family Technology Adoption Impact Scale (FTAIS) showed a medium score for the whole scale (*M* = 2.95; *SD* = .53) and acceptable levels of internal consistency with a Cronbach's α between .75 and .78. in the subscales. The item representing the greatest negative impact perception of ICTs in the family context was "ICTs reduce family time". "Arguments about time spent using ICTs" (62.0%) and "addiction to internet, videogames and others" (37.7%) were the most commented problems in regard to the use of ICTs. This study showed that the QUTIC was a valid instrument to evaluate the constructs proposed and is expected to be a useful tool, both contributing to future research in this field and valuable as an assessment instrument in clinical practice, as it measures the impact of ICTs in the family context, and helps in define strategies adjusted to the challenges that the digital world entails to families.

Keywords: Information and Communication Technologies; family dynamics; impact of ICT use; patterns of ICTs use; questionnaire; psychometric properties.

Introduction

Information and communication technologies (ICTs) understood to be an amalgamate range of goods, applications and services whose purpose is to produce, store, process, distribute and exchange information (United Nations Development Programme [UNDP], 2014) attributed their rapid advances and the development of a digital communication network to digital methods (Encyclopedia.com, 2020). Thus, they are also known as digital or emerging technologies. These technologies have progressively become part of our everyday lives and the numbers themselves offer abundant proof: more than four billion people around the world are connected to the internet, representing 57% of the world population (Internet World Stats, 2019). At present, 93% of American adults use the internet, and for some demographic groups – such as young adults, college graduates and high-income households – internet usage is nearly ubiquitous (Pew Research Center [PRC], 2022). In 2021, 89% of individuals between the ages of 16 and 74 used the internet, and 80% of individuals in the European Union (28 countries) accessed the internet daily (Eurostat, 2022). In Portugal, 87% of households have internet access at home, 80% use it on a daily basis, and 69% used mobile devices to access the internet on mobility (Eurostat, 2022).

ICTs have appeared in the literature associated with the professional sphere; however, they rapidly found that households were indeed a significant place to be (Stafford & Hillyer, 2012). This new reality is changing the way family members engage with each other and, consequently, requiring that significant adjustments be made in several dimensions of the family context (Hertlein, 2018; Lanigan, 2009; Neustaedter et al., 2018; Ponte, 2019). Previous quantitative research has focused on how many people use digital technologies and how frequently they use them (e.g., Eurostat). However, this one-dimensional focus does not consider the variations in how people use ICTs (Brandtzæg, 2010). The landscape of technology has become more complex; by providing a wide variety of ICTs and content to choose from, distinct preferences and lifestyles had emerged, which created additional difficulties in understanding media behaviour (Brandtzæg, 2010; Mauthner & Kazimierczak, 2018). Thus, organizing this complex behaviour into characteristic patterns or typologies of use and considering other variables besides the frequency of use (e.g., goal orientation) may allow a better exploration into its nature and consequences (Brandtzæg, 2010).

Based on family systems theory with an ecological and developmental approach, the Sociotechnological model (Lanigan, 2009) integrates theses reciprocal influences between the effect of multifunctional ICTs on families (e.g., beneficial) and the impact of familial (e.g., stage of development), extrafamilial (e.g., workplace), and individual characteristics (e.g., demographics) on the way that those ICTs are adopted within the family context. Influenced by Lanigan (2009), the Couple and Family Technology (CFT) framework (Hertlein & Blumer, 2014) addressed the complexity of the ICTs and couple/family interaction. It encompasses a trilogy of reciprocal influences between ICT characteristics (e.g., accessibility), structure of relationships (e.g., rules, roles) and process of relationships (e.g., initiation, end), exploring how ICTs shape the ways couple and family relationships are organized and function around technology (Hertlein, 2018; Hertlein & Blumer, 2018).

Despite the recent increase in the empirical studies in this research field, there is no consensus as to whether ICTs have a positive, negative, or mixed impact in the family functioning (Carvalho et al., 2015; Hertlein & Twist, 2019; Sharaievska, 2017). A significant part of the research has focused on the negative influence of ICTs in the families. For instance, the increase in individualized time when a person is using ICTs, even if they are in the company of other family members, seems to have implications in the perception of lower levels of family cohesion and lower levels of quality of family time (Mesch, 2006a; Mullan & Chatzitheochari, 2019; Williams & Merten, 2011). Arguments about time spent online and consequent situations of discord related to ICT use has also been documented (e.g., Carvalho et al., 2017; Díaz-López et al., 2020). For instance, conflicts may emerge between couples due to the distractions and different levels of acceptability arising from the variety of functions that made available to couples by ICTs (Hertlein & Twist, 2018; Lenhart & Duggan, 2014), and consequently from potential situations of online infidelity (Hertlein et al., 2017; Stafford & Hillyer, 2012). Furthermore, between parents and their children, conflicts may arise according to children's risk of addiction to technology (Veiga et al., 2018; van den Eijnden et al, 2016; Kırcaburun et al., 2019), about the "room culture" scenario in which children are isolated in their rooms in private online activities (Cardoso et al., 2008), and concerning the association between the excessive use of technology and several kinds of problems in youths (e.g., behavioural, health, social) (Díaz-López et al., 2020; Jenkins et al., 2020). In families with children, the risks of falling victim to

cyberbullying (Kırcaburun et al., 2019), having access to age-inappropriate content, and being contacted by strangers (Carvalho et al., 2017; Ponte et al., 2018) are some of the major concerns mentioned by parents. Transverse to every family life cycle stage, the potential that ICTs will interfere with family norms, reduce family privacy and blur the private and public spheres (Díaz-López et al., 2019; Lenhart & Duggan, 2014; Mesch, 2006b) are more examples noted in the literature about the negative influences of technology within families.

Nevertheless, certain positive aspects of how technologies have transformed the family context have also been pointed out, as in the management of the family's daily activities in real time through technologies (Mangan et al., 2018; Messena et al., 2019; Paus-Hasebrink et al., 2019; Trilar et al., 2018), the increase in family time across several activities online within home (Ponte et al., 2018) and the maintenance of social and family relationships (Mangan et al., 2018; Sharaievska, 2017). Couples, parents and children report finding information, obtaining social support and spending leisure time with diverse groups of people via social media, actions that otherwise would not be possible without the intervention of technology (Lenhart & Duggan, 2014; Mangan et al., 2018; Mosley & Lancaster, 2019; Vaterlaus & Tulane, 2019). Parents benefit from communicating with their children on a new level (combining fun, entertainment and learning) and connecting with other parents, including those who are geographically distant (Bacigalupe & Bräuninger, 2017; Mangan et al., 2018; Khvorostianov, 2016), providing a bridge for intergenerational communication, strengthening family bonds and inspiring a sense of being virtually present (Bacigalupe & Lambe, 2011; Khvorostianov, 2016). The COVID-19 pandemic has transformed many aspects of people's lives across all the world. Schools and workplaces had been shut down, forcing millions of people to stay at home for extended periods of time, during which they substantially changed their use of technologies to perform several activities from home, such as work tasks, online learning, shopping, basic daily care tasks, and connecting with loved ones (PRC, 2022).

The lack of consensus found in the literature addressing the influence of ICTs in the family context may be in part explained by the non-standardized instruments used (e.g., self-report questionnaires), the separate type of samples analyzed (e.g., adolescent, parents) and the different kinds of variables (e.g., internet, internet addiction, family conflict) that are operationalized in distinct ways (Carvalho et al., 2015). As far as we

know, with the exception of the SEFT/ETEF (with its family approach based on a clinician perspective) or the phubbing scale (Roberts & David, 2016; which measures the subject's perception of their partner's phubbing behaviour on the quality of their couple relationship), most of the quantitative studies in this field embraced instruments address ICT use and family dynamics separately (e.g., Díaz-Lopez et al., 2020; Trilar et al., 2018; Williams & Merten, 2011). Moreover, they were mainly focused on an individual perspective and excessive media behavior as a comparison term of analysis, being the Bergen Facebook addiction scale (Veiga et al., 2018) and the Internet Disorder Scale (Pontes & Griffiths, 2017) examples. Given this scenario, the absence of an instrument for measuring ICT impact in the family context addressing the general population suggests further developments in this field. In addition, knowledge in this area is important not only to characterize ICT user behaviour, but also to explore the consequences of its use and then to identify best practices related to family technology integration (Hertlein & Twist, 2019).

Objectives

Attempting to fill in these gaps, this study intends to survey the general Portuguese population in order to develop an instrument to characterize individual ICTs use and measure how they perceived its impact in their family context. More specifically, it is expected to:

a) Characterise individual ICT user behaviour in Portugal, considering a variety of ICTs (hardware and software) and integrate other contextual variables beside the frequency (e.g., context and purpose of use) to describe the various ways in which individuals use ICTs;
b) Categorise ICT users into distinct patterns to contribute to a clearer view about Portuguese ICT user behaviour;
c) Assess the individual perception of ICT's impact in the family context (e.g., family cohesion, rules, intimacy, communication) to understand how ICTs create challenges in the structure and process of family life;
d) Identify problematic situations in the family context due to ICT use, based on the most observed family problems found in the literature relating to this topic in order

to better understand which situations deserve more attention from an interventional point of view;

e) Explore the relationship of the main variables in the study to better understand the Portuguese technological landscape.

Method

Participants

Participating in the study were 950 individuals, with ages ranging from 12 to 82 years (*M* = 38.84; *SD* = 16.09). The majority were between 12-30 years old (34.4%) and 31-45 years old (31.4%) and were essentially female (65.6%) and Caucasian (99.3%). Most of participants were married (52.8%) or single (34.3%), belonging to families with an average number of four (31.5%), two (29.2%) or three (24.8%) members per household. The average number of participants were of a medium socioeconomic level (42.3%), followed by those from a higher level (37.8%). They were also employed full time (57.5%) and students (20.9%), and many with a degree from higher education (50.4%). The majority were living in Continental Portugal (94.5%) and residing in the centre of the country (54.2%).

Procedure

In February of 2014, a formal request was made to the author of the Emerging Technologies and Families Survey's to translate and adapt it to the general Portuguese population. Three independent translations were examined by a research team discussion until the final version was reached and accepted by the original author, in July of 2014. However, due to the significant changes in the questionnaires (e.g., one questionnaire about single Internet use was transformed into 13 ICT uses) it was instead decided to create a new instrument: Information and Communication Technologies Use Questionnaire (QUTIC). A pilot study was done in September of 2014 with 10 individuals to assess whether respondents could understand the meaning of the instrument and if it needed to undergo any adjustments. In this sequence, one questionnaire was removed (the Clinical Technology Attitudes, as it proved to be inadequate to the general

population). The final version of the QUTIC was established to include five self-report questionnaires and a scale.

This study was integrated in a doctoral research project at the University of Coimbra, Portugal, regarding the use of ICTs and family dynamics. It had the ethical approval of the University Ethics Commission and respondents completed consent forms before answering the protocol. Data were gathered using a written protocol within a non-probabilistic sampling (Vogt, 1999), between January of 2015 and September of 2017. The face-to-face protocol was distributed across the Portuguese territory, and the online protocol was diffused through a link on a web platform, shared on different institutional web pages. The inclusion criteria for this study required that participants have Portuguese nationality and be at least 12 years old. The average time to answer the protocol was about 10 minutes. In September of 2017, fifty-seven individuals fulfilled the protocol to conduct a test-retest reliability, with a 3-week interval.

Instruments

Sociodemographic Questionnaire

This study had a designed self-report questionnaire to collect participants' sociodemographic data (e.g., sex, age, socioeconomic level).

Information and Communication Technologies Use Questionnaire (QUTIC)

This questionnaire is based on the Emerging Technologies and Families Survey (SEFT/ETEF; Bacigalupe et al., 2014), an instrument that assesses how family clinicians use technologies and how they perceived their impact upon the families with whom they work. The original instrument asked for the number of ICTs used by clinicians, the time they spent on the internet (for professional and personal purposes) and the family problems (a list of problematic situations encountered by families when using ICTs). Moreover, the SEFT/ETEF also had two scales: one to assess how clinicians perceive the influence of ICTs on clients' families (FTAIS), and another to measure the extent to which clinicians use ICTs in the clinical context (CTA). The QUTIC was redefined from its original version and adapted to survey the Portuguese general population. Globally, this instrument comprises five self-report questionnaires and a scale, and aims to explore:

(1) which ICTs individuals use. This section includes a list of 13 ICTs (e.g., smartphone, tablets) in which the respondent will select those they use. The number of ICTs and its type can be assessed from here.

(2) how often the ITC is used. The respondent is asked to choose the average time spent using the ICT(s) selected previously (e.g., once a week; 30 to 60 minutes a day).

(3) for which purpose the ICT is used. From a list of six different purposes (e.g., social/entertainment, communication, information, healthcare) the respondent indicates the one that best fits the intended purpose of each ICT used.

(4) in which context the ITC is used. From a list of five different contexts (e.g., room, living room, in mobility) the respondent indicates the setting where each previously selected ICT is used. These four first questionnaires intend to characterize the individual ICT's use.

(5) the individual perception of the ICT's impact in the family context. The *Family Technology Adoption Impact Scale* (FTAIS) is a five-point Likert scale (1=totally agree to 5=totally disagree) with five items associated with a positive impact (e.g., "ICTs enhance healthy communication") and another five to a negative one (e.g., "ICTs interfere with family norms"). After the inversion of the even item codes, higher results are associated with a more positive perception of the impact of ICTs in the family context.

(6) some problematic situations in the family context. *Family problems* (FP) is a questionnaire in which individuals indicate from a list of 11 situations those that they have already experienced as problematic in their family context with respect to ICTs use (e.g., "Arguments about time spent using ICTs"). Higher results are associated with a higher number of family problems.

The *Clinical Technology Attitudes* (CTA) was removed given that it was found to be an unsuitable scale for surveying the general population.

Data analysis

We conducted the statistical analyses using the IBM SPSS Statistics program (version 25.0). The missing data analysis performed across the items of the QUTIC showed that they range between 0.1 to 2.7%. Despite the lower percentage of missing data found, Little's MCAR test was conducted χ^2 (1066) = 1008.7, $p < .894$ showing that the hypothesis

that missing data MCAR was confirmed. Thus, we removed those cases from the analysis (Tabachnick & Fidell, 2001).

Descriptive studies were performed in all the QUTIC's questionnaires. To do this, we calculated percentages, means, standard deviations, modes, ranges, skewness, and kurtosis. An absolute skewness value above 2 and an absolute kurtosis value above 7 were considered a reference of substantial departure from normality (West el al. 1996).

We performed a cluster analysis to generate participant profiles according to the ICTs used, considering the variables from the first four questionnaires (type of ICT, number, frequency, context, and purpose of use). This is a robust technique for classifying similar objects into different groups, being the most commonly technique used in studies to identify media user types (Brandtzæg et al., 2011). Thus, a two-Step cluster analysis was chosen given the possibility to combine a non-hierarchical and hierarchical approach, using a large sample and categorical data (Kaufman & Rousseeuw, 2005). Several models were subsequently produced using an automatic and a predetermined number of clusters. The log-likelihood method was used to determine the distance between subjects. The number of clusters were set by their overall contribution to the silhouette measure of cohesion and separation. Those with approximate value to one indicated a better quality of the clustering and, consequently, the best solution to be chosen (Cohrs et al., 2013).

The resulting cluster groups were analysed according to the demographic variables. Categorical data were analysed using chi-squared statistic (χ^2) to association patterns, Cramer's V was used to measure the strength of the effect and the adjusted residuals to denote the direction of the association, in which a positive residual above 2.0 indicates that the number of observed cases in that cell were significantly larger than the expected ones (Agresti, 2002).

In the FTAIS, we also conducted a construct validity, defined as the extent to which the scale measured the considered construct, assessed by a factor analysis and using a principal component analysis (PCA) in which only components with eigenvalues over 1 were considered. Reliability was measured through internal consistency analysis using Cronbach's α. Values above .7 were taken as a reliable scale (Pallant, 2001), and a discriminant validity was performed using a correlation analysis according to another instrument, measuring a different construct. The convergent validity was not performed

due to the lack of instruments to do so. Correlations between the main variables in this study (e.g., number of ICTs, FTAIS) were conducted using Pearson's coefficient and the strength of the relationship was based on Cohen's categorization (Pallant, 2001).

Results

Characterization of the individual ICT use

Regarding the ICTs commonly used by the Portuguese population in this sample descriptive analyses were done according to the type, number, frequency, purpose, and context of use.

Type and number of ICT used

The ICTs mainly used were mobile phones (78.6%), email (78.3%), laptops (76.6%) and social networking sites (SNS; 76%). The average number of ICTs used was seven (*SD* = 2.88), with a mode and median of eight. The minimum number reported was one and maximum 13. A paired-samples t-test was conducted to evaluate if there were differences according to the number of ICTs used in two distinct moments (test-retest). Results revealed that there was no statically significant difference between these assessments [(*M* = 7.01, *SD* = 2.27) to *M* = 7.05, *SD* = 2.31), *t*(56) = -1.00, *p* = .322].

Frequency of use

As for frequency of use, the questionnaire includes 14 sub-categories varying from "once a week" to "more than 12 hours a day". In the present study data were aggregated in four sub-categories: non-users, low (once a week, once-twice a week, three-four times a week, five-six times a week), average (up to 30 minutes a day, 30-60 minutes a day, one-three hours a day) and high frequency (three-six hours a day, six-nine hours a day, nine-12 hours a day, more than 12 hours a day). With an assignment of zero, one, two and three points to each one of the four sub-categories respectively, results showed that the ICTs with a higher frequency of use are smartphones, mobile phones and the internet (navigating across sites). Those with a lower frequency were e-books, own websites or blogs, and videogames (See Table 1).

Table 1

Type and Frequency of ICTs Used

	Type of use		Frequency of use			
	Yes		No	Low	Average	High
ICTs	*n*	%	%	%	%	%
Landline phone	651	68.5	31.5	58.0	9.1	1.5
Mobile phone	747	**78.6**	21.4	17.1	40.2	21.4
Smartphone	648	68.2	31.8	4.6	35.3	28.3
Desktop computer	388	40.8	59.2	14.1	7.9	18.8
Laptop	728	**76.6**	23.4	24.9	24.5	27.2
Tablet	416	43.8	56.2	21.9	18.0	3.9
E-book	101	10.6	**89.4**	8.4	1.7	.50
Videogame	185	19.5	**80.5**	12.9	5.3	1.3
Email	744	**78.3**	21.7	26.2	36.2	15.9
SNS	722	76.0	24.0	14.9	46.3	14.7
Videoconference	471	49.6	50.4	36.9	10.2	2.4
Website or blog	134	14.1	**85.9**	7.9	5.1	1.2
Internet	777	81.8	18.2	16.0	52.5	13.3

Purpose of use

In Table 2, along with the purpose of use, the ICTs mainly used for professional or academic purposes were desktop computers (75.2%), email (67.9%), and laptops (58%). The internet was the ICT most reported with informational purpose (37.5%). The landline phones (58.5%), mobile phones (57.2%) and videoconferences (42.8%) were the ICTs most reported with a communication purpose. Most of the ICTs were used with a social or entertainment purpose: videogames (98.4%), SNS (84.1%) and tablets (75.9%).

Context of use

Regarding the context of use, with the exception of mobile phones and smartphones mainly used in mobility (58.1%; 47.7%), and laptops and email mainly used in a work or school setting (59.4%; 43.5%), the majority of ICTs are used in the home and in the living room. Those most used in this context were landline phones (71.7%), video games (63.8%) and tablets (58.1%). More detailed information about the contexts in which ICTs are used in Table 3.

Table 2

Type of ICT and Purpose of ICT Use

	Purpose of use					
ICTs	Professional Academic %	Social Entertainment %	Informational %	Communicational %	Shopping %	Healthcare %
Landline phone	19.2	19.5	2.2	**58.5**	.2	**.5**
Mobile phone	22.4	18.9	1.3	**57.2**	.1	.0
Smartphone	16.2	40.9	4.3	38.6	.0	.0
Desktop computer	**75.2**	13.2	7.8	3.6	.3	.0
Laptop	**58.0**	27.2	**11.0**	3.4	**.4**	.0
Tablet	13.0	**75.9**	8.2	2.9	.0	.0
E-book	23.8	49.5	**25.7**	1.0	.0	.0
Videogame	1.1	**98.4**	0.0	0.0	.0	**.5**
Email	**67.9**	5.9	8.6	17.6	.0	.0
SNS	2.9	**84.1**	3.1	9.7	.0	**.1**
Videoconference	25.7	30.2	1.3	**42.8**	.0	.0
Website or blog	31.6	51.9	9.8	6.0	**.8**	.0
Internet	28.9	28.9	**37.5**	2.4	**2.1**	**.1**

Table 3

Type and Frequency of ICT Use Context

	Context of use				
	Work/ School	Living room	Room	Internet hotspots	Mobility
ICTs	%	%	%	%	%
Landline phone	21.5	**71.7**	1.5	.2	5.1
Mobile phone	21.4	13.3	4.8	2.4	**58.1**
Smartphone	21.3	20.8	6.6	3.5	**47.7**
Desktop computer	**59.4**	31.8	8.0	.3	.5
Laptop	**30.1**	50.4	10.7	1.2	7.6
Tablet	8.2	**58.1**	14.5	1.7	**17.6**
E-book	20.8	41.6	**23.8**	0.0	13.9
Videogame	10.3	**63.8**	**18.9**	3.8	3.2
Email	**43.5**	31.7	8.7	5.2	0.8
SNS	6.8	52.6	**16.8**	**7.2**	16.6
Videoconference	21.4	48.8	**17.8**	3.2	8.7
Website or blog	26.9	47.8	.9	**8.2**	8.2
Internet	28.4	41.5	11.0	**5.8**	13.4

Patterns of ICT use

With respect to the variations in how individuals use ICTs, we tried to find different patterns of use, considering the above variables. More specifically, we performed a two-Step cluster analysis on the entire sample to generate participant profiles according to the ICTs used: 13 ICTs (e.g., smartphones, tablets), frequency (no, low, average, high), purpose (professional/academic, social/entertainment, informational, communicational, shopping, healthcare), and context (work/school, home, internet hotspots, mobility).

The two-cluster option was determined to be an attractive option with a silhouette measure of .4 (compared with .2 from the three, four and five-cluster models found). However, a dichotomic model emerged in this sample, one of the ICTs non-used (Cluster 1, 18.7%) and used (Cluster 2, 81.3% ICTs). Thus, based on the inputs that best predicted this model (e.g., frequency of internet use, context of internet use, purpose of email use, videoconference use) we devised other models to create one that could better discriminate this pattern. According to data, and based on the Brandtzæg (2010) typology of internet users, the three-cluster model was then found to offer the best solution, with a silhouette measure of .3. Given that 4.1% of the cases were missing cases, a total of only 912 individuals integrated these clusters.

Group 1 comprised 123 individuals (13.5%), essentially non-ICT users (like Group 1 in the two-cluster option) and thus designated as Non-users.

Group 2 integrated 273 individuals (29.9%) who were characterized as being 'internauts' with an average frequency of use from 30 minutes to one-three hours a day and mainly using ITCs for information-gathering purposes. SNS were used essentially for entertainment, and the other ICTs (email, laptops, the internet) were mainly used with the living room as the preferred setting, which led us to designate these individuals as Instrumental-Socializer/Entertainment users.

Group 3 comprised 516 individuals (56.6%). As Group 3 ICT use is directed towards several activities (professional/academic, information, entertainment) with a preeminence of the academic/professional purposes reflected by the use of laptops and email in the living room and in work/school context, this group is distinguished from Group 1 and Group 2 by the total use of several kinds of ICTs (100% use of internet, email, smartphones, laptops), higher frequencies of all ICTs used (from three-six hours to more than 12 hours a day) and the diversity of their context of use (work/school and in mobility) outside the household setting. For these reasons, they are designated as Advanced users.

Table 4 characterizes these profile groups with respect to each clustering variable. The three resulting cluster groups were analysed according to the demographic variables (e.g., age, gender, family life cycle stage, socioeconomic level, academic level). Statistical assumptions were assured according to Cochran's indications.

Table 4
Clustering Variable Descriptive Statistics across Groups.

	Group 1 N = 123 (13.5%)	Group 2 n = 273 (29.9%)	Group 3 n = 516 (56.6%)	Total n= 912 (100%)
	%	%	%	%
Internet				
No use	100.0	17.9	0.0	18.9
Use	0.0	82.1	100.0	81.1
Frequency of use				
Low	0.0	27.1	13.4	15.7
Average	0.0	40.7	53.9	42.7
High	0.0	14.3	32.8	22.8
Purpose				
Professional/academic	0.0	23.4	28.9	23.4
Social/entertainment	0.8	23.8	28.5	23.4

Information	0.0	31.1	38.0	30.8
Communication	0.0	2.6	2.1	2.0
Shopping	0.0	1.1	2.5	1.8
Healthcare	0.0	0.4	0.0	0.1
Context				
School/Work	0.0	22.3	29.5	23.4
Living room	0.0	38.1	38.6	33.2
Bedroom	0.0	6.6	12.6	9.1
Internet hotspot	0.0	5.1	5.4	4.7
Mobility	0.8	10.3	14.0	11.1
Email				
No use	100	24.5	0.0	20.8
Use	0.0	75.5	100.0	79.2
Frequency of use				
Low	0.0	35.2	28.7	26.8
Average	0.0	28.6	49.0	36.3
High	0.0	11.7	22.1	16.0
Purpose				
Professional/academic	0.0	42.5	72.3	53.6
Social/entertainment	0.0	7.0	4.5	4.6
Information	0.0	8.8	7.8	7.0
Communication	0.0	17.2	15.5	14.0
Shopping	0.0	0.0	0.0	0.0
Healthcare	0.0	0.0	0.0	0.0
Context				
School/Work	0.0	29.7	44.6	34.1
Living room	0.0	31.1	28.3	25.3
Bedroom	0.0	5.9	9.1	7.0
Internet hotspot	0.0	3.7	5.6	4.3
Mobility	0.0	5.1	12.4	8.6
SNS				
No use	97.6	30.8	0.0	22.4
Use	2.4	69.2	100.0	77.6
Frequency of use				
Low	1.6	23.8	13.6	15.0
Average	0.8	37.4	64.3	47.7
High	0.0	8.1	22.1	14.9
Purpose				
Professional/academic	0.8	1.1	3.3	2.3
Social/entertainment	0.0	59.0	84.1	65.5
Information	0.0	2.9	2.7	2.4
Communication	0.8	6.2	9.9	7.6
Shopping	0.8	0.0	0.0	0.1
Healthcare	100	0.0	0.0	.1
Context				
School/Work	0.8	3.3	7.2	5.2
Living room	0.8	41.4	49.6	41

Bedroom	0.8	8.4	18.6	13.2
Internet hotspot	0.0	5.5	7.2	5.7
Mobility	0.0	10.6	17.4	13.0
Smartphone				
No use	93.5	63.0	0.4	31.7
Use	6.5	37.0	99.6	68.3
Frequency of use				
Low	1.6	5.1	4.8	4.6
Average	4.9	19.8	51.0	35.4
High	0.0	11.0	44.2	28.3
Purpose				
Professional/academic	0.8	5.9	15.9	10.9
Social/entertainment	2.4	10.3	43.8	28.2
Information	0.0	0.7	4.7	2.9
Communication	3.3	19.0	35.7	26.3
Shopping	0.0	0.0	0.0	0.0
Healthcare	0.0	0.0	0.0	0.0
Context				
School/Work	0.8	9.9	20.3	14.6
Living room	1.6	8.8	20.3	14.4
Bedroom	0.8	2.2	7.0	4.7
Internet hotspot	0.0	0.7	3.9	2.4
Mobility	3.3	14.7	48.4	32.2
Personal computer				
No use	98.4	35.5	0.0	23.9
Use	1.6	64.5	100.0	76.1
Frequency of use				
Low	1.6	26.4	29.8	25.0
Average	0.0	23.8	30.0	24.1
High	0.0	14.3	40.1	27.0
Purpose				
Professional/academic	0.0	31.	61.2	44.2
Social/entertainment	1.6	20.1	25.6	20.8
Information	0.0	8.8	10.3	8.4
Communication	0.0	3.3	2.5	2.4
Shopping	0.0	0.4	0.4	0.3
Healthcare	0.0	0.	0.0	0.0
Context				
School/Work	0.0	16.1	32.0	23.0
Living room	0.0	34.8	48.6	37.9
Bedroom	0.0	5.5	11.6	8.2
Internet hotspot	0.8	0.	1.6	1.0
Mobility	0.8	8.1	6.2	6.0

There was a statistically significant relationship between the three clusters and age [χ^2 (8) = 379.38, p = .001, V = .456]. The residuals showed a larger contribution of the youngest participants in the cluster 3 (*Adj. Res.* = +10.1 in the 12-30 years old class) and of the older participants in the cluster 1 (*Adj. Res.* = +10.6 in the 61-75 years old class). Between the other demographic variables and the cluster's groups there was also a statistically significant relationship. Respectively, to gender [χ^2 (2) = 23.70, p = .001, V = .161] with females providing the greatest contribution to Cluster 3 (*Adj. Res.* = +4.3), to the family life cycle stage [χ^2 (10) = 185.30, p = .001, V = .428] with a strong association between Cluster 1 and families in late middle age and nearing the end of life (*Adj. Res.* = +8.7), to socioeconomic level [χ^2 (4) = 151.27, p = .001, V = .361] with a preponderance of a lower level in cluster 1 (*Adj. Res.* = +10.9), and to the academic level [χ^2 (14) = 428.48, p = .001, V = .488] being the lowest academic level strongly dependent to Cluster 1 (See Table 5). Thus, Group 1 (Non-users) was mainly made up of men (50.4%) between 46 and 60 years of age (46.7%) and between 61 and 75 years of age (36.9%). The majority belong to families launching children (60.2%) and families in late middle age and nearing the end of life (30.9%). This group had the higher proportion of individuals with a lower socioeconomic (58.7%) and academic level (above 12th grade, 84.3%).

Group 2 (Instrumental-Socializer/Entertainment users) was essentially composed of females (61.2%), between the age of 46 to 60 (38.1%) and 31 to 45 (25.3%). Families with launching children (54.2%) represented the largest proportion of the family configuration, followed by families with adolescent children (15%). The socioeconomic level was essentially average (44.9%), and the academic level varied among those with a college degree (28.8%), to those with a 12th grade education (27.7%) and those with a 9th grade education (19.9%).

Group 3 (Advanced users) was largely made up of females (71.3%) of a younger age: from 31 to 45 years old (40.1%) and from 12 to 30 years old (27.7%), clearly in contrast with Groups 1 and 2. It was formed by families in distinct stages of development: families with young children (24.4%), families launching children (33.1%) and in couple formation (17.8%). The socioeconomic level was the highest registered (48.8%) when compared to the other groups and the percentage of individuals with a higher academic level: with a Bachelor's degree (35.6%), Master's degree (22.8%) and Doctorate degree (4.9%).

Table 5

Demographic Characteristic across Clustering Groups.

Demographics	Statistic test	Group 1 *n* = 123 (13.5%)		Group 2 *n* = 273 (29.9%)		Group 3 *n* = 516 (56.6%)		Full sample *n* = 912
		%	SR	%	SR	%	SR	%
Gender								
Male	χ^2 = 23.70*	50.4	**+3.9**	38.8	+1.7	28.7	-4.3	34.6
Female		49.6	-3.9	61.2	-1.7	71.3	+**4.3**	65.4
Age								
12-30	χ^2 = 379.38*	1.6	-8.3	23.4	-4.7	48.8	+**10.1**	34.4
31-45		8.2	-5.9	25.3	-2.6	40.1	+**6.5**	31.4
46-60		46.7	+**6.8**	38.1	+**7.3**	8.7	-11.5	22.6
61-75		36.9	+**10.6**	12.8	+1.9	2.1	-9.0	10.0
76-82		6.6	+**6.2**	0.4	-1.4	0.2	-3.0	1.1
Socioeconomic status	χ^2 = 151.27*							
Low		58.7	+**10.9**	21.0	+.4	9.0	-8.2	20.2
Average		36.7	-1.3	44.9	+1.0	42.2	0.0	42.2
High		4.6	-7.7	34.1	-1.3	48.8	+**6.8**	37.7
Academic level	χ^2 = 428.48*							
4th grade		45.5	+**16.3**	5.2	-2.1	.6	-9.3	8.0
6th grade		14.0	+**5.6**	5.2	+.8	1.6	-4.6	4.3
9th grade		24.8	+**2.7**	19.9	+1.9	12.6	-3.6	16.4
12th grade		6.6	-4.2	27.7	+**3.1**	21.4	+.1	21.3
Bachelor's degree		2.5	-6.9	28.8	-.1	35.6	+**4.9**	29.1
Master's degree		0.0	-5.1	8.9	-3.6	22.8	+**6.8**	15.5

PhD		0.0	-2.1	.7	-2.6	4.9	+**3.8**	3.0
Other		6.6	+**3.4**	3.7	+**1.8**	.6	-3.9	2.3
Family life cycle stage	$\chi^2 = 185.30$*							
Emergent adult		0.0	-2.3	1.8	-1.9	5.4	+**3.3**	3.6
Couple formation		0.0	-4.6	9.9	-1.9	17.8	+**4.9**	13.0
Family with young children		0.0	-5.4	10.3	-3.	24.4	+**6.9**	16.9
Family with adolescent children		8.9	-1.7	15.0	+.7	14.3	+.5	13.8
Family launching children		60.2	+**4.1**	52.2	+**4.4**	33.1	-6.9	43.1
Family in late middle age and nearing the end of life		30.9	+**8.7**	8.8	-.5	4.8	-5.5	9.5

Note. SR = standardized residuals; $\alpha = .05$; *+.-* = positive or negative significant associations between cluster and variable category; χ^2 = chi-squared

**p < .001*

The Family Technology Adoption Impact Scale (FTAIS)

The results of the descriptive studies concerning the FTAIS showed an average score for the whole scale (*M* = 2.95; *SD* = .53), with the same median (*Md* = 2.60) and mode (*Mo* = 2.60). On the one hand, the item with the lower average (*M* = 2.28; *SD* = 1.00) was Number 1 "ICTs reduce family time", being the one which represented the greatest negative impact perception of ICTs in the family. On the other hand, Item 8 "ICTs assist in life cycle transitions" was the item with the higher average (*M* = 3.58; *SD* = .78), being the one that best expressed the perception of the positive impact felt in the family context. The values range from 1 (total agreement) to 5 (total disagreement), with the five answer choices offered to the participants in the 10 items. The whole distribution showed an absolute skewness value of .019 and an absolute kurtosis value of .095. As for the skewness and kurtosis, the totality of the items did not exceed the absolute skew and kurtosis values (of 2 and 7 respectively) considered as reference (West et al., 1996) to associate data to a normal distribution and, consequently, revealing a good capacity to discriminate responders in all items (See Table 6).

Table 6

Sampling Item Characteristics, Correlation Inter-item and Internal Consistency

Item	M	SD	Mo	Range	Skew	Kurt	Corre. inter-item	α if item dele-ted
1 Reduce family time	**2.28**	1.00	2	1-5	.80	.14	.44	.72
2 Enhance healthy family communication	3.00	0.99	3	1-5	-.01	-.72	.47	.71
3 Interfere with family norms	2.83	1.05	2	1-5	.17	-.89	.49	.71
4 Improve family cohesion	2.73	0.89	2	1-5	.30	-.31	.51	.71
5 Endanger family privacy	2.84	1.04	2	1-5	.18	-.87	.44	.72
6 Facilitate intergenerational links	3.47	0.90	4	1-5	-.58	-.09	.31	.73
7 Interfere with family intimacy	2.97	0.99	2	1-5	.03	-.89	.43	.71
8 Assist in life cycle transitions	**3.58**	0.78	4	1-5	-.76	.57	**.20**	**.**75
9 Make the family more vulnerable	2.91	0.97	3	1-5	.08	-.68	.39	.72
10 Strengthen resilience	2.95	0.94	3	1-5	-.06	-.45	.32	73

Note. Corre. Inter-item = correlation inter-item

Validity studies. The construct validity was verified by factor analysis, using the principal component analysis (PCA) of the correlations between the FTAIS items. Statistical assumptions were assured. Sample size was adequate to the statistical analyses with a ratio of 95 subjects per item to be factor analysed, which responds to the most demanding criteria (Nunnally, 1978).

The normality of the FTAIS results was assessed according to the skewness and the kurtosis values and based on a normal Q-Q Plot in which observed values for each score were plotted against the expected value from the nominal distribution, showing a reasonably straight line, which suggests a normal distribution.

Inspection of the correlation matrix revealed the presence of several coefficients of .3 and above. The Bartlett test of sphericity (χ^2 (45) = 2452.135, p < .001) and the Kaiser-Meyer-Olkin (*KMO* = .798) showed that data were suitable for factor analysis (Tabachnick & Fidell, 2001).

The principal components analysis revealed 2 components with eigenvalues exceeding 1, both explaining 53% of the variance: 30.93 per cent and 22.11 per cent respectively for component one and two. The Kaiser's criterion was assisted by Cattell's scree test about the two factors retained. Varimax rotation revealed the presence of a simple structure, with both components showing strong loadings, and the majority of variables loading substantially on only one component. Table 5 shows the component loadings after rotation and communalities.

Table 7

Rotated Component Matrix and Communalities

Item	Component 1	Component 2	*Communalities*
7 Interfere with family intimacy	.793	-.028	.630
9 Make the family more vulnerable	.767	-.058	.591
5 Endanger family privacy	.763	.017	.582
3 Interfere with family norms	.758	.105	.586
1 Reduce family time	.548	.278	.377
4 Improve family cohesion	.208	.766	.630
2 Enhance healthy family communication	.208	.724	.567
10 Strengthen resilience	.016	.693	.480
6 Facilitate intergenerational links	.004	.684	.468
8 Assist in life cycle transitions	-.130	.614	.393

Positive perception items (2,4,6,8 and 10) load strongly on Component 2 and negative perception items (1,3,5,7 and 9) load strongly on Component 1. The results of this analysis support not only the use of the whole FTAIS scale, but also of its separate subscales: the positive and the negative one. The designations were chosen attending to the content that each component integrates. In this sample, similar results were found in the two subscales with a slighter predominance of the negative over the positive: the FTAIS negative (*M* = 2.76; *SD* = .74; *Mo* = 2) and FTAIS positive subscale (*M* = 3.14; *SD* = .63; *Mo* = 3).

Reliability studies. To assess the reliability of this scale, an internal consistency analysis and test-retest stability were performed. The FTAIS positive (comprising items 2,4,6,8 and 10) had a Cronbach's α of .75 and the FTAIS negative (comprising items 1,3,5,7 and 9) had a Cronbach' α of .78 (5 items). The analysis of the Cronbach's α in the whole scale does not increase if any item is removed. Moreover, except for Item 8, the item-total correlation values showed a good discriminant capacity (*r* > .30), demonstrating to measure the same construct (Pestana & Gagueiro, 2008). Thus, given that the whole scale had a reasonable internal consistency (*α* > .70), and the positive sub-scale (which includes Item 8) did not increase the internal consistency if this item was detached, it was decided not to remove it.

The test-retest stability concerning the FTAIS showed that there was no statistically significant difference in the individual perception of the impact of ICTs on the families in two distinct moments [(*M* = 3.05, *SD* = .46) to *M* = 3.04, *SD* = .48), *t*(56) = .74, *p* = .462, which revels good temporal stability for the scale. Similar results were found in the positive [(*M* = 3.32, *SD* = .52) to (*M* = 3.34, *SD* = .56), *t*(56) = -.386, *p* = .701] and negative sub-scales [(*M* = 2.79, *SD* = .69) to (*M* = 2.73, *SD* = .66), *t*(56) = 1.38, *p* = .172].

Discriminant validity. One measure of discriminant validity was used: SCORE-15 results showed that the whole scale was not statistically significant associated with SCORE-15 (*r* = -.032, *p* = .332). In addition, both positive (*r* =- .035, *p* = .290) and negative (*r* = -.021, *p* =.528) sub-scales were neither associated with this instrument. This was expected given how these two instruments measure different constructs.

Family problems

An average score of two problematic situations was indicated in the questionnaire (*M* = 2.16; *SD* = 1.87). The number of family problems referenced ranged between zero and

eight, with the most cited items being: "Arguments about time spent using ICTs" (62.0%), "addiction to the internet, videogames and others" (37.7%), and "children being isolated in their rooms" (31.5%).

The paired-samples t-test did not display differences with respect to the number of family problems in two distinct moments [(M = 2.3, SD = 1.61) to M = 2.29, SD = 1.54), $t(56)$ = .814, p = .419].

Table 8

Descriptive Statistics of the Problematic Family Situations

Item	*n*	%	*M*	*SD*
1 Arguments about time spent using ICTs	588	**62.0**	.62	.48
2 Minors access inappropriate content	181	19.1	.19	.39
3 Minors being abused though the internet (contact and exchange of information with strangers, cyberbullying)	124	13.1	.13	.33
4 Children being isolated in their rooms	298	**31.5**	.32	.46
5 ICTs facilitating connections with distant family members	779	82.3	.82	.38
6 Blurring of work and family life	296	31.4	.31	.46
7 Online infidelity	66	7.0	.07	.25
8 Use of ICTs to deal with conflicts that are difficult to address face to face	241	25.4	.25	.43
9 Addiction to the internet, videogames and others	358	**37.7**	.38	.48
10 Daily family management via ICTs	616	65	.65	.47
11 Physical health issues due to ICT use	135	14.3	.14	.35

Correlations

Correlations between the main variables in this study were conducted. Results revealed a positive and significant association between the number of family problems and the number of ICTs (r = .324, p < .001) and a negative and significant association between the number of FP and the FTAIS total scale (r = -.243, p < .001), FTAIS negative sub-scale (r = -.244, p < .001), and FTAIS positive subscale (r = -.118, p < .001)

The FTAIS total scale was positive and significantly correlated to the negative (r = .805, p < .001) and to the positive subscale (r = .724, p < .001). Despite being low, both subscales were correlated to each other (r = .174, p < .001), revealing an ability to measure the same construct.

Discussion and conclusions

This study had as its main goal the creation of an instrument to characterise individual ICT use and its influence in the family context in the general Portuguese population. The results in this sample showed that, percentage wise, ICTs users' vastly outnumbered non-users. Moreover, from the perspective of the former, different patterns of use emerged, showing significant variations amongst them.

The average number of ICTs used was seven, revealing that this sample uses a variety of ICTs. Mobile phones, email, laptops and SNS were the type of ICT used by the greatest number of individuals. The ICTs used most frequently were smartphones, mobile phones, and the internet, which seem to reflect the contemporary demands of a technological society. Smartphones and mobile phones were the hardware most used to access the internet in mobility, being consistent with information provided in the most recent Eurostat publication (Eurostat, 2019), which gives reliability to our data.

Desktop computers and email were clearly associated with the professional and academic sphere as they are mainly used in the work/school context and with professional/academic purposes beyond other uses. But the preferred context for the use of the majority of ICTs with communicational and social/entertainment purposes (e.g., landline phones, video games, tablets, SNS) was the living room, at home. In reference to the CFT framework (Hertlein & Blumer, 2014), this result can have important implications in clinical practice. Given how this house division is a common denominator for accessibility to those ICTs, relevant family dynamics could occur there. So, in this context it may be useful to explore how ICTs shape the way family members' relationships are organized and function with respect to ICTs (Hertlein, 2018; Mullan & Chatzitheochari, 2019). The landline and the mobile phone were identified primarily as a means of communication, whereas the smartphone, in contrast, was mainly used for social/entertainment purposes. The opportunity for media multitasking (Messena et al., 2019) which emerging technologies affords its users seems to be one more indicator of the technological everyday life we live today.

According to the ICTs users' clusters that emerged from our data, three groups revealed distinct characteristics. Thus, in our study, a woman was more likely to be an Advanced or Instrumental-Socializer/Entertainment user of ICTs. Age also seemed to play a role in the likelihood of using ICTs, with the youngest individuals being the most active

users when compared to the oldest participants and non-users. Lower socioeconomic and academic levels were mostly associated with Group 1 (Non-users), average levels to Group 2 (Instrumental-Socializer/Entertainment users) and higher levels to Group 3 (Advanced users). Given that this last group has a strong academic and professional component, it may reflect the demands of a modern society concerning young generations of students and active professionals (from 12 45 years of age). To the contrary, Group 1 seems to comprise an older fringe of society (age 46 to 85) probably in part retired and, in some cases, perhaps never having to deal with ICTs in their jobs. Group 2 includes individuals of an average socioeconomic and academic level (essentially those with a 9th grade education to a bachelor's degree) mainly between the ages of 31 to 60, which identifies them as persons of employment age but for whom ICTs tend to be used in the household essentially for entertainment and informational purposes. Nevertheless, these results suggest that academic and socioeconomic status may be playing an important role in terms of ICT use (Brito, 2017; Carvalho et al., 2019). Moreover, the asymmetry found between these three groups (according to the above variables) seem to point to the digital gap between generations (Brandtzæg, 2010; Brandtzæg et al., 2011) in Portugal.

The assessment of how ICTs impact the family context was noted by the FTAIS and family problems. The extent to which ICTs can reduce or diminish family time was the greatest perceived negative influence on the family, which corroborates research that argues that online activities that do not involve family members, implies a reduction in the quality of the experienced family time (Mullan & Chatzitheochari, 2019). A more positive perception was related to how ICTs can assist in life cycle transitions. Rapid technological advances have contributed to the emergence of new formats of information creation, storage and sharing (UNDP, 2014), enabling an ever-growing number of individuals to use their ICTs not only as a vehicle of communication between family members but also as a new "family photo album" which can easily be shared with others, and just a click away (Bacigalupe & Bräuninger, 2017; Khvorostianov, 2016; Ponte et al., 2018; Sharaievska, 2017).

In sum, although a significant part of the research has focused on the negative influences that ICTs have produced in families (e.g., Díaz-López et al., 2020; Jenkins et al., 2020), the results of the FTAIS seem to point to a dynamic process in which positive and

negative impacts coexist in a relatively balanced way. If on the one hand, most individuals perceive the influence of ICTs as "reducing family time", on the other hand they noted how important they were in "assisting in life cycle transitions". Furthermore, if ICTs "facilitate intergenerational links" and "enhance healthy family communication", they also "interfere with family norms" and "endanger family privacy".

The family problems most reported were the arguments about time spent using ICTs, possible addiction to the internet, video games and others, and the isolation of children in their rooms. The first arguments are associated with one another, representing considerable concerns, as documented in the literature in recent years and across all stages of the family life cycle (e.g., Hertlein & Twist, 2018; Kırcaburun et al., 2019) with the progressive development of online addiction scales (e.g., Veiga et al., 2018). In families with children, the instances in which the children isolate themselves in their rooms has also been reported in previous studies (Cardoso, 2008; Carvalho et al., 2019; Mesch, 2006b) and such situations represent a challenge in terms of how well the parents are in control of the supervision process (Díaz-López et al., 2019). Moreover, from the list of family problems, those that were most commented were two neutral items (5 and 10), indicating the positive influence felt by individuals in their family contexts. The "daily family management via ICTs" as stated in the literature (Mangan et al., 2018; Paus-Hasebrink et al., 2019; Trilar et al., 2018) enabled family members to reduce some time constraints and "ICTs facilitating connections with distant family members" allowed for the maintenance of family relations, providing a sense of being virtually present (Bacigalupe & Bräuninger, 2017; Mangan et al., 2018; Khvorostianov, 2016; Sharaievska, 2017). Furthermore, give how most ICTs were used in the living room, we hypothesize that these families can be gathered in person, virtually connected with loved ones who are geographically distant from them, but distanced from each other in the same house (Mullan & Chatzitheochari, 2019).

The correlation analysis between the main variables of this study showed that the higher the number of ICTs the higher the number of family problems registered. According to the CFT, the accessibility of ICT may bring several changes in the structure and process of relationships, and some with problematic outcomes. Not surprisingly, these FP were associated with a more negative perception about the impact of ICTs in families (given that the existence of problematic situations may contribute to accentuating less

favourable perceptions of ICT use). However, the reduced number of family problems identified, along with the average score listed in the FTAIS (total) scale, allowed us to consider that the individuals in our sample were able not only to identify these problems but also to explore the benefits that ICTs may bring to their lives.

In systemic clinical work with families, it is crucial to understand the role that technology currently plays in the occurrence, development, and maintenance of specific issues (e.g., online dating, addiction to the internet, video games or SNS, risk of online infidelity). This study represents an important moment in the assessment of how Portuguese individuals use ICTs and perceive their impact in their own family context. Beyond the one-dimensional perspective of the frequency of use, this instrument allows for the evaluations of a multi-dimensional examination, one that includes not only which type of ICT is involved and time spent using it, but also the context and purpose of this use. These collective data, in addition to considering the variations in the way individuals use ICTs (Brandtzæg, 2010), allow for the placement of ICTs into different patterns or typologies of use, which contributes to simplifying this complex behavior, exploring it nature and consequences (Brandtzæg, 2010). Furthermore, the QUTIC also has an ICT impact scale and a list of family problems that can be used (separately or together) by therapists to assess (online or in a face-to-face session) the individual perception of ICT use and to note which is adaptive or problematic to each family.

Limitations and future directions

This study has some limitations. The sample size was not large enough to generalize the results found in the Portuguese population. Having a self-report questionnaire format, it may not assure reliable feedback from the respondents. Children under 12 years old did not participate in the survey, and given how children are increasingly becoming great consumers of ICTs, this represents a significant limitation in the present study.

Additional assessment methods should be taken in future research as a complement to the questionnaire, such as interviews with all family members to obtain a more reliable and complete perspective of the ICTs used by each family member and their influence in the family context. In a future version, perhaps question number three and four (purpose and context of ICT use), instead of asking individuals to mark the single option that best fits with their use, should consider sorting the options given, since some

people suggested that they use the same ICT to perform several activities (e.g., smartphones). Moreover, the structure of the FTAIS should be analysed in future studies to verify whether it has a principal component with two sub-scales or just a single dimension, given that correlations between the total scale and each one of the sub-scales were high and between the two sub-scales were weak. We hope that this instrument can be adapted to future studies (e.g., different stages of the family life cycle) and in different countries, enabling cross-cultural studies. In addition to being considered an important research questionnaire, promoting further studies in this field, it is hoped that this instrument will be a useful assessment tool to be used by family therapists in clinical practice. Although ICT use for clinical purposes and e-therapy was far from being a rule before the COVID-19 pandemic, they nevertheless represent an innovative and therapeutic setting with clinical benefits (Borcsa & Pomini, 2020). Thus, we hope that in the future, the QUTIC can be used to help family therapists to measure the impact of ICTs in the family sphere and, consequently, to define strategies better adjusted to the families of the 21st century when coping with the challenges that ICTs and the COVID-19 pandemic have presented them. This would include, for example: improving communication between parents and adolescent children via ICTs; strengthening family bonds using ICTs despite the geographical distance; rearranging routines; helping families to save time with the daily management of activities by using ICTs; balancing online and offline activities; and incorporating the role of technology in therapeutic ways (e.g., online sessions, additional communication tools).

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Capítulo 3 | A influência das TIC no funcionamento familiar,

em diferentes etapas do ciclo de vida da família

Capítulo *ebook* - *e-Famílias: O impacto das TIC na vida contemporânea de famílias com crianças*

Artigo 4 - *ICTs and Family Functioning: A study with Portuguese families with adolescents and emerging adults*

Artigo 5 - *ICTs use and family functioning: Does the family life cycle stage matter?*

e-Famílias: O impacto das TIC na vida contemporânea de famílias com crianças

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Resumo

Hoje, as crianças nascem rodeadas de tecnologia e utilizam-na, diariamente, acedendo ao mundo com a ponta dos dedos. Mas se por um lado as Tecnologias de Informação e Comunicação (TIC) são uma janela de oportunidades, por outro expõem crianças e famílias a uma multiplicidade de riscos. Para avaliar o impacto das TIC no contexto familiar, 179 indivíduos (23-47 anos) pertencentes a famílias com filhos até aos oito anos, responderam a um questionário sobre a utilização das TIC (QUTIC) e sobre o funcionamento familiar (SCORE-15). Os resultados revelaram que as TIC são sobretudo utilizadas para contactar familiares distantes (91%), porém, o contacto e a troca de informações com pessoas estranhas por parte dos menores (75%) e as discussões sobre o tempo de utilização das TIC (67%) foram os maiores problemas evidenciados. Estes problemas acarretam dificuldades na interação dos membros das famílias, sobretudo ao nível da dimensão dos recursos familiares, isto é, das capacidades da família para gerir problemas quotidianos e adaptar-se a mudanças (r = .360, p < .01). O presente estudo permitiu conhecer o tipo de utilização das TIC realizado pelos participantes, as suas perceções sobre o impacto das TIC nas dinâmicas familiares, bem como compreender melhor a complexidade destas relações.

Palavras-chave: Tecnologias de informação e comunicação; Funcionamento familiar; Família com filhos até 8 anos.

Introdução

Ao longo das últimas duas décadas, as tecnologias de informação e comunicação (TIC), que incluem plataformas de hardware e software adaptáveis e interoperáveis (Bacigalupe & Lambe, 2011), difundiram-se pela sociedade e encontraram um lugar significativo na esfera da vida familiar (Livingstone, Mascheroni, Ólafsson, & Haddon, 2014). As crianças na contemporaneidade nascem rodeadas de tecnologia e utilizam-na ativamente através de uma variedade de dispositivos, recriando formas de comunicação e lazer, enquanto acedem ao mundo com a ponta dos dedos (Dias & Brito, 2016; Lepičnik-Vodopivec & Samec, 2013).

A influência das TIC no funcionamento das famílias

Decorrente dos rápidos avanços tecnológicos e da inclusão das TIC no contexto familiar, tem-se assistido a mudanças sem precedentes no funcionamento familiar (Carvalho, Francisco, & Relvas, 2015; Hertlein, 2014). Hoje em dia é improvável não se utilizar o telemóvel para avisar um filho de que chegaremos mais tarde ao seu encontro ou abdicarmos de estabelecer contacto com familiares através de videoconferência. Mas, concretamente, que alterações têm as TIC provocado no funcionamento das famílias?

Alguns estudos ressaltam a diminuição do tempo passado em família (Nie, 2001), a probabilidade de maior distanciamento afetivo entre os membros da mesma família (Bran Piedrahita et al., 2016) e a possibilidade de ocorrência de conflitos intergeracionais (Mesch, 2006a,b). Estes conflitos surgem frequentemente face à elevada frequência de utilização da internet para fins de entretenimento pelos filhos (Mesch, 2006a) e ao fenómeno da *cultura de quarto*, onde os filhos se isolam em atividades *online* com amigos (Mesch, 2006a,b), dificultando o exercício da parentalidade, por vezes, sem modelo referencial face às TIC (Plowman, McPake, & Stephen, 2010). Adicionalmente, as TIC são consideradas como facilitadoras da perda de controlo sobre as interações, permeando situações de adição às TIC (Young & Nabuco de Abreu, 2011) e de diluição de limites entre as esferas pública e privada (Mesch, 2006b), não só pela comodidade de hoje se poder trabalhar a partir de casa (Wajcman, Rose, Brown, & Bittman, 2010) mas também pela facilidade com que se publicam dados privados (Livingstone et al., 2014). No seu reverso, dada a facilitação da gestão diária de atividades em tempo real através de múltiplos dispositivos móveis (Devitt & Roker, 2009; Stern & Messer, 2009), as TIC permitem

também um aumento do tempo em família, por vezes através da partilha de atividades online (Plowman et al., 2010). Vários estudos têm mesmo demonstrado que as TIC passaram a representar um veículo facilitador na manutenção de relações à distância, onde a família pode tornar-se virtualmente presente e assegurar a identidade familiar (Bacigalupe & Lambe, 2011; Stern & Messer, 2009).

Em suma, introduzidas no contexto familiar, as TIC têm implicado mudanças não só nos estilos de comunicação, na adoção de novas linguagens e na qualidade relacional entre os membros da família, como também têm contribuído para a redefinição de regras, limites e papéis familiares (Carvalho et al., 2015; Hertlein, 2014), podendo mesmo ser consideradas um novo subsistema familiar (Johnson & Puplampu, 2008). No entanto, os resultados são inconsistentes relativamente à influência que estas provocam no contexto familiar, funcionando como duas faces da moeda, pois, se por um lado são uma janela de oportunidades, por outro expõem crianças e famílias a uma multiplicidade de riscos (Livingstone et al., 2014).

Famílias Portuguesas com filhos até aos oito anos e a utilização de TIC

Desde o nascimento do primeiro filho à sua entrada na escola, a família passa por um conjunto de reorganizações, sobretudo, através da definição de papéis parentais/filiais e do reajustamento de limites do novo sistema familiar face ao exterior (Relvas, 1996). Ora se às novas tarefas que se colocam a estas famílias forem adicionadas as TIC, a equação parece ganhar resultados surpreendentes, pois as famílias com crianças são consideradas mais tecnológicas, encontrando-se mais conectadas do que famílias que não têm filhos (Dias & Brito, 2016; INE, 2017). Pesquisas realizadas recentemente em Portugal revelam que nas residências de crianças dos três aos oito anos há pelo menos um televisor (99%), um telemóvel (92%), um computador portátil (70%) e um tablet (68%), dispostos nos espaços comuns da casa e ao alcance das crianças, fazendo parte das suas rotinas diárias (Ponte, Simões, Batista, Jorge, & Castro, 2017). Estudos revelam que, independentemente do nível socioeconómico (NSE), as famílias têm acesso aos mesmos meios digitais (Dias & Brito, 2016), verificando-se um aumento da qualidade e quantidade destes nas famílias com um NSE mais elevado (Brito, 2017). Outros estudos reportam que crianças de NSE mais elevado utilizam mais internet, enquanto as de condição escolar mais baixa possuem mais aparelhos digitais (Ponte et al., 2017). Entre os pais, 80% são

internautas, fazendo o acesso à rede através de casa (96%), ao passo que 38% das crianças até aos oito anos acede à internet, sendo o tablet o dispositivo mais utilizado (63%). Este parece figurar mais como "*babysitter*" (enquanto os adultos estão ocupados com outras tarefas) do que como promotor de atividades de aprendizagem ou de interação familiar (Dias & Brito, 2016; Ponte et al., 2017). Este cenário pode ser permeável à ocorrência de situações problemáticas, como o acesso a conteúdos inadequados para a idade (Livingstone et al., 2014). Estudos recentes revelam que os pais supervisionam mais o comportamento dos filhos em relação ao tempo e aos conteúdos acedidos na televisão, mas relativamente a outras TIC, consideram ser cedo para se preocuparem com perigos *online* (Dias & Brito, 2016) ou revelam uma fragilidade nas suas competências digitais de observação e controlo, receando a possibilidade de estranhos contactarem com os filhos (Ponte et al., 2018). As crianças parecem saber mais sobre meios digitais do que os pais pensam e tendem a explorar os dispositivos sozinhas, sem qualquer treino específico (Plowman et al., 2010). E se por um lado parece assustador, por outro, estes filhos estão a ter a possibilidade de redescobrirem novas capacidades, uma vez que as TIC se revestem de um enorme potencial no desenvolvimento das crianças (Lepičnik-Vodopivec & Samec, 2013; Ponte et al., 2018), promovendo novas formas de aprendizagem, criatividade e comunicação (Brito, 2016).

A investigação relativa à temática da utilização de tecnologias em contexto familiar tem vindo a aumentar nas últimas décadas, sobretudo com crianças a partir dos nove anos de idade (e.g., EU Kids online) mas os estudos com crianças mais novas e o seu impacto no funcionamento familiar global são ainda reduzidos (Carvalho et al., 2015). Assim, este estudo pretendeu dar resposta às seguintes questões: a) Quais os padrões de utilização das TIC pelos pais de crianças até aos oito anos? b) Como é que os pais destas crianças percecionam o impacto da utilização das TIC no contexto familiar? e c) Qual a relação entre a perceção do impacto das TIC na família e o funcionamento familiar?

Metodologia

O presente estudo faz parte de uma investigação mais alargada, que pretende avaliar a interação entre a utilização das TIC e a dinâmica familiar, em diferentes etapas do ciclo de vida familiar (Carvalho, Fonseca, Francisco, Bacigalupe, & Relvas, 2016). Os

dados foram recolhidos através da plataforma *LimeSurvey* mediante a partilha do *link* de acesso, entre outubro de 2016 e março de 2018, com recurso ao método de bola de neve.

Com o objetivo de avaliar o impacto das TIC no funcionamento de famílias com filhos até aos oito anos, fez-se um recorte da amostra total (N = 1326). Assim, a amostra do presente estudo é constituída por 179 indivíduos entre os 23 e os 47 anos de idade (*M* = 35.5; *DP* = 4.8), maioritariamente mães (70%), de nível socioeconómico médio (59%) e residentes nas regiões Centro (42.5%) e Área Metropolitana de Lisboa (34.1%). As famílias dos participantes são maioritariamente famílias nucleares intactas (86.7%) e constituídas por um filho (50%) ou dois (46%).

Para além de um questionário de dados sociodemográficos, os participantes responderam a um questionário sobre a utilização das tecnologias de informação e comunicação (QUTIC) e outro sobre o funcionamento familiar (Systemic Clinical Outcome Routine Evaluation; SCORE-15). O QUTIC (Carvalho, Francisco, Bacigalupe, & Relvas, 2018), baseado num instrumento que avalia a forma como os terapeutas familiares percebem o impacto das TIC nas famílias que acompanham (SEFT; Bacigalupe, Camara & Buffardi, 2014), pretende caracterizar o padrão de utilização das TIC pelo respondente (tipo de TIC utilizadas, frequência, finalidade e contexto do seu uso), bem como avaliar a perceção individual do impacto das TIC no contexto familiar e das situações problemáticas vivenciadas no contexto familiar decorrentes do seu uso. O SCORE-15 (Stratton, Bland, Janes, & Lask, 2010; versão portuguesa de Vilaça, Sousa, Statton, & Relvas, 2014) avalia diversos aspetos do funcionamento familiar (forma como as interações familiares são vivenciadas) sensíveis à mudança terapêutica, através das dimensões da Comunicação (padrão comunicacional estabelecido), Dificuldades (fragilidades que a família possui) e Recursos Familiares (capacidades para se adaptar a novas circunstâncias e gerir dificuldades quotidianas).

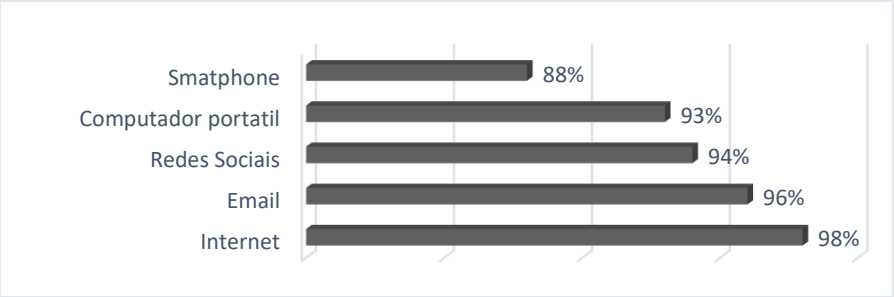
Resultados e Discussão

Padrão de utilização das TIC pelos pais de crianças até aos oito anos

Segundo os dados da pesquisa, as atuais famílias portuguesas com filhos até aos oito anos de idade que integram a amostra são claramente famílias digitais, vivendo rodeadas de tecnologia. Conforme ilustra a Figura 1, cerca de 90% dos pais e mães de crianças até aos oito anos utiliza diariamente uma grande diversidade de TIC (internet,

email, redes sociais, computador portátil e smartphone), sendo a internet utilizada praticamente pela totalidade dos participantes. Apesar de o tablet ser identificado por alguns autores como o dispositivo mais utilizado por crianças até aos oito anos (Dias & Brito, 2016), não consta na lista das cinco TIC mais utilizadas pelos pais do nosso estudo, remetendo para a possibilidade deste ser efetivamente utilizado como "*babysitter*" e estar a ser escamoteado o seu potencial de interação familiar (Dias & Brito, 2016).

Figura 1. Percentagem das principais TIC utilizadas pelos pais.



A caracterização da utilização média das TIC mais utilizadas por estas famílias encontra-se na Tabela 1, considerando o tempo de utilização, o contexto e a finalidade

Tabela 1

Utilização média de TIC em função da frequência, contexto e finalidade

TIC	Frequência diária	Contexto	Finalidade
Internet	1-3h	sala	informação
Email	1-3h	sala	profissional
Redes sociais	30-60min	sala	entretenimento
Computador portátil	3-6h	sala	profissional
Smartphone	1-3h	mobilidade	comunicação e entretenimento

Nota. h = horas; min = minutos.

Excetuando o smartphone, que é sobretudo utilizado em contexto de mobilidade, a sala surge como o denominador comum da utilização das principais TIC. O computador portátil e o email são ambos acedidos na sala com fins profissionais e/ou académicos. A

possibilidade de se trabalhar a partir de casa talvez possa explicar, em parte, a elevada frequência (47%) de problemas de ausência de limites entre a vida familiar e profissional que as famílias desta amostra assinalam (Stevenson, 2011; Wajcman et al., 2010).

Impacto das TIC no contexto familiar

Conforme mostra a Figura 2, as TIC são percecionadas por estas famílias como responsáveis pela *redução do tempo passado em família* (67.1%). A literatura científica aponta a diminuição deste tempo (Nie, 2001) quando as atividades *online* não são partilhadas entre os membros da família e o tempo despendido com estas não se reverte noutra atividade.

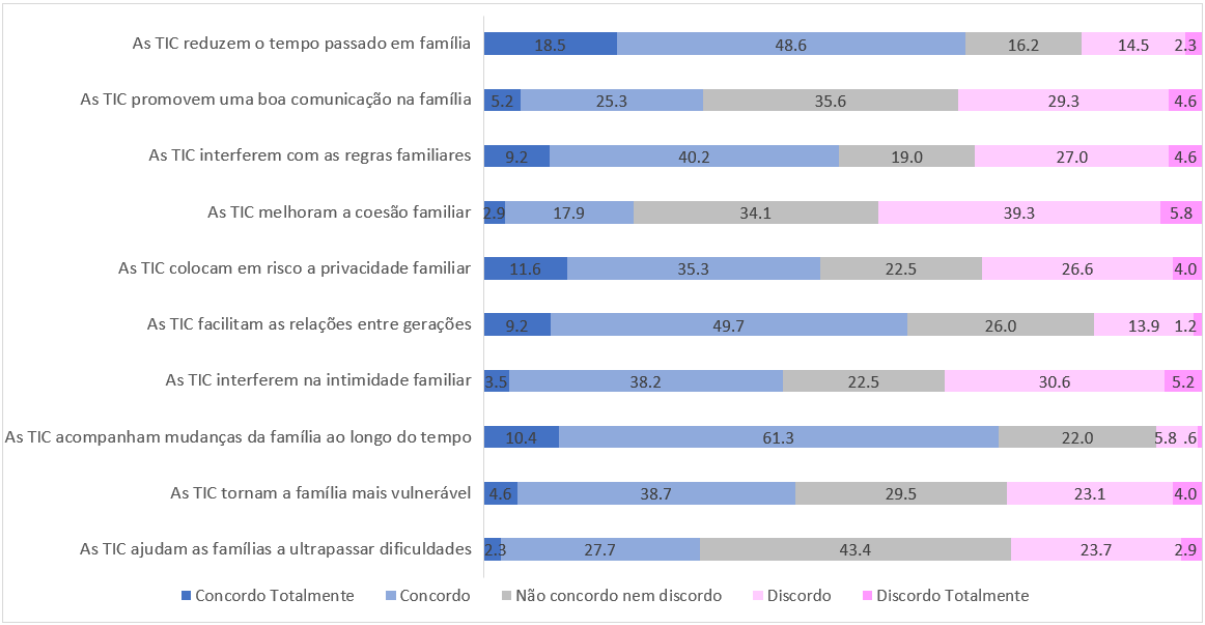


Figura 2. Perceção do impacto das TIC no contexto familiar.

Assim, e dado que a maioria das TIC é utilizada na sala, podemos estar perante famílias reunidas presencialmente, virtualmente ligadas com elementos, geograficamente distantes mas desconectados uns dos outros na mesma casa. Simultaneamente, as TIC são percecionadas como um veículo *facilitador das mudanças ao longo do tempo* (71.7%) e *das relações entre gerações* (58.9%).

Parece reforçar-se a ideia de que o computador se tornou o novo álbum de família quando crianças crescem ao lado de fotografias suas partilhadas em redes sociais (Ponte et al., 2017). Ressalta-se ainda que as TIC parecem contribuir para o fortalecimento dos

laços familiares, especialmente, nas relações à distância (Bacigalupe & Lambe, 2011; Stern & Messer, 2009).

Tabela 2

Principais problemas assinalados com o uso das TIC

Problemas	%
Contacto e troca de informações com pessoas estranhas por parte dos menores	75
Discussões sobre o tempo de utilização das TIC	67
Falta de limites entre a vida familiar e profissional/académica-escolar	47
Dependência da internet, dos videojogos ou do telemóvel	37
Acesso a conteúdos desadequados à idade (ex., violentos, pornografia) pelos menores	24
Crianças isoladas nos seus quartos a utilizar as TIC	16
Existência de problemas de saúde física por utilização das TIC (ex., lesões)	14
Infidelidade online	6

De acordo com a Tabela 2, o *contacto e troca de informações com pessoas estranhas por parte dos menores* é o problema mais reportado e que parece ser revelador do nível de consciência e do receio que esses pais têm dos riscos a que as TIC os expõem (Livingstone et al., 2014; Ponte et al., 2018). As *discussões sobre o tempo de utilização das TIC* e a possibilidade de ocorrência de situações de *dependência da internet, dos videojogos ou do telemóvel*, são dois perigos interligados e que podem ser apontados em duas direções. Não só o tempo excessivo e o risco de adição às TIC (Young & Nabuco de Abreu, 2011) por parte dos filhos podem desencadear respostas emocionais disruptivas nestes (Ponte et al., 2017) e, consequentemente, despoletar conflitos intergeracionais (Mesch, 2006a), como os pais que apresentam estas condutas podem condicionar a qualidade relacional com os filhos e revelar-lhes um modelo parental desadequado ao seu desenvolvimento (Bran Piedrahita et al., 2016). Em contraponto, a grande maioria destas famílias aponta que as TIC são essencialmente utilizadas para o *contacto com familiares distantes* (91%), permitindo-lhes assegurar a identidade familiar através da presença virtual (Bacigalupe & Lambe, 2011), e para a *gestão das atividades quotidianas* (83%) (Devitt & Roker, 2009; Stern & Messer, 2009), o que evidencia o impacto positivo que as TIC têm nestes contextos familiares.

Relação entre perceção do impacto das TIC na família, problemas associados ao seu uso e funcionamento familiar

A Tabela 3 apresenta os resultados da análise de correlações entre a variável sociodemográfica (NSE), o número de TIC utilizadas, o número de problemas identificados e os resultados da escala de funcionamento familiar (resultado global e dimensões: recursos, comunicação e dificuldades).

Tabela 3

Correlações entre as principais variáveis

Variáveis	1	2	3	4	5	6	7
1. NSE	-						
2. TIC	.200**	-					
3. Problemas	.015	.072	-				
4. Recursos	.036	-.041	.360**	-			
5. Comunicação	-.222**	-.124	.248**	.427**	-		
6. Dificuldades	-.249**	-.191*	.220**	.460**	.795**	-	
7. F. Familiar	-.184*	-.142	.318**	.716**	.897**	.903**	-

Nota. NSE = Nível socioeconómico; TIC = Número de TIC utilizadas; Problemas = Número de problemas; Recursos = dimensão recursos; Comunicação = dimensão comunicação; Dificuldades = dimensão dificuldades; F. Familiar = funcionamento familiar global. *ρ<.05, ** ρ<.01

O elevado número de tecnologias que cada família possui e utiliza parece estar diretamente relacionado com o NSE, o que corrobora em parte a literatura (Brito, 2017). O NSE parece ainda estar associado a melhores níveis de comunicação e a menores dificuldades no funcionamento das famílias, talvez face ao maior número de dispositivos disponíveis e aos benefícios que as famílias retiram da sua utilização (Devitt & Roker, 2009; Stern & Messer, 2009).

Ao maior número de problemas relacionados com o uso das TIC associa-se um pior funcionamento familiar. Em particular, os problemas relacionam-se com níveis mais disfuncionais de comunicação, com perceção de maior sobrecarga de dificuldades e menos recursos para fazer face às mesmas. Dado que a situação problemática mais assinalada é a possibilidade de estranhos contactarem com os filhos e que, adicionalmente, alguns destes pais carecem de um modelo de parentalidade face às TIC (Plowman et al., 2010), é percetível como esta realidade pode causar flutuações

consideráveis no funcionamento destas famílias (e.g., conflitos intergeracionais; Mesch, 2006b).

Conclusão

Mais do que um cenário tendencialmente pessimista que a literatura científica tende a ilustrar sobre a influência das TIC no funcionamento das famílias (Bacigalupe et al., 2014), os resultados do presente estudo parecem apontar para um jogo dinâmico e integrador de forças positivas e negativas nesta interação, às quais as famílias se vão adaptando e funcionando de forma eficaz.

A rapidez com que a tecnologia avança, a par da precocidade com que as crianças começam a manusear dispositivos digitais, impõe que os pais tenham consciência desta realidade e que se atualizem para poderem acompanhar os filhos nesta utilização, de forma a que estes obtenham um nível de familiaridade para as utilizar de forma responsável, independente (Plowman et al., 2010) e com um propósito na sua vida (Dias & Brito, 2016; Lepičnik-Vodopivec & Samec, 2013). Neste sentido, é importante que os pais utilizem conjuntamente com os filhos dispositivos como o tablet, fomentando o seu potencial de aprendizagem e interação, mantendo um canal de comunicação com os filhos, privilegiando o conhecimento das atividades que estes encetam *online* e os encorajem a falarem sobre problemas que encontrem. Assim, é fundamental que optem pela negociação de regras e limites familiares face à utilização das TIC, em alternativa a medidas puramente restritivas (Livingstone et al., 2014; Ponte et al., 2018).

Por último, sendo esta etapa do ciclo vital caracterizada pela abertura ao exterior, a comunicação escola-família pode também ter aqui um papel relevante na promoção de uma utilização efetiva, segura e responsável das TIC pelas crianças (Dias & Brito, 2016), sustentada a montante por uma agenda de informação e formação parental em competências digitais (Livingstone et al., 2014; Ponte, 2018), que deveria ser uma prioridade na definição de políticas nacionais.

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ICTs and Family Functioning: A study with Portuguese families with adolescents and emerging adults

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Abstract

Nowadays, Information and Communication Technologies (ICTs) represent an integral part of contemporary family life, introducing changes in families' functioning. Positive, negative, and mixed aspects of this influence were identified. The present study intends to understand the relationship between ICTs and family functioning among participants from two different family life cycle stages. A total of 157 Portuguese families (307 participants from 97 families with emerging adult children and 169 from 60 families with adolescents) completed measures about the use of ICTs (an adaptation of SEFT/ETEF©) and family functioning (SCORE-15). The number of ICTs and problems related to their use were higher in families with adolescent children. The use of a higher number of ICTs was related to a better level of family functioning in both family groups. However, according to the multiple regression model, the problematic situations related to ICTs use only seem to predict a worse level of family functioning in families with adolescent children. Also, parents and children of each group differed in the number of ICTs used. Some limitations, implications for family therapy, and future research directions are discussed.

Keywords: ICTs; family functioning; families with adolescents; families with emerging adults.

Introduction

Given the exponential growth in the use of Information and Communication Technologies (ICTs) over the last two decades, nowadays they represent an integral part of contemporary family life (Bacigalupe et al. 2014; Bacigalupe and Lambe 2011). According to Eurostat's last publication (2017), in 2016 an average of 85% of European households had access to the internet from home, with the share of daily users at 93% in Luxembourg, 88% in the United Kingdom and 60% in Portugal. In this country, 18 years ago, only 5% of households had an internet connection and 21% had a portable computer. In the last year, it rose to 74% of households having an internet connection and 74% of users between 16-74 years old accessing it through mobile/smart phones (78%) and portable computers (73%). In part, this progressive adoption of ICTs was a consequence of national policies on digital inclusion that had been undertaken during the past few years. For instance, in 2005 the Technological Plan *Ligar Portugal* [Connecting Portugal] used local mediators to combat info-exclusion in different locations, and from 2007 to 2011, the *E-Escolas* [E-Schools] and *E-Escolinhas* broadened access to computers and broadband to students in schools and at home between 1st and the 12th year of schooling. In 2011, due to the more than 1.6 million portable computers distributed among students, in the EU Kids Online survey, Portugal led in children's ownership of personal portable computers and was placed third in children accessing the internet in their bedrooms (Livingstone et al. 2011; Ponte 2012).

Diverse studies have revealed that individuals are changing the way they use ICTs and in consequence, not only multiple patterns of individual media use are emerging (Brandtzæg et al. 2011; Haythornthwaite 2005; Zhong 2013), but also various effects are shaping family functioning (Hertlein 2012; Lanigan 2009; Stafford and Hillyer 2012; Stern and Messer 2009). However, no consensus had been found (Akyıl et al. 2017; Carvalho et al. 2015): positive, negative, and mixed aspects of this influence have been identified. Some studies suggested that ICTs can conduct to disruptions in family routine (Mesch 2006a) and blur boundaries between the private and public spheres (Mesch 2006b; Stafford and Hillyer 2012), especially in situations in which parents work from home using ICTs (Huisman et al. 2012; Wajcman et al. 2010). This is also the case when family members adopt risky online behaviors that expose households to vulnerabilities (Lanigan 2009; Hertlein 2012), such as contact with inappropriate content for children (Bacigalupe

and Lambe 2011; Livingstone et al. 2014), infidelity online (Cravens et al. 2013) or loss of control over virtual interactions (Huisman et al. 2012). In addition, ICTs can reduce family time (Nie 2001) and lead to intergenerational conflicts due to children's use of ICTs for entertainment purposes and children being isolated in their rooms (Mesch 2006b), for instance. On the other side, another subset of studies suggested that ICTs simplify the daily management of activities of modern families such as making plans in real time, notifying of changes in arrangements, paying bills online, and monitoring and ensuring children's safety by keeping an open line in case of emergency (Devitt and Roker 2009; Hertlein 2012; Watt and White 1999). They also increase the time spent as a family (Stern and Messer 2009) and improve family communication and intimacy among members (Devitt and Roker 2009; Lanigan 2009). In addition, they can increase family relations, notwithstanding the geographical distance (Bacigalupe and Lambe 2011; Stern and Messer 2009), especially in transnational families (Tseng 2016).

It seems undeniable that ICTs have introduced qualitative changes in the way that members of today's families interact with each other (Carvalho et al. 2015). Nevertheless, the heterogeneous results found may partly be a consequence of the different ICTs focused on in the studies (e.g., smartphone, internet), the diverse activities assessed (e.g., gaming with friends, communication with family members), the sort of familial variables conceptualized (e.g., family cohesion, family time, parental monitoring), the different methodologies adopted (e.g., questionnaire, case study), and the specific stage of the family life cycle (e.g., families with children in school, families with adolescent children). More significantly, some studies have suggested that ICTs are not only becoming a central dimension in the different stages of the family life cycle (Chesley and Johnson 2014; Hertlein 2012; Watt and White 1999), but also seem to have different outcomes on family dynamics due to the specific stage of the family life cycle (Bacigalupe 2011; Davies and Gentile 2012; Lanigan 2009). For example, the internet can be associated with high family cohesion in empty-nest families, providing a tool for communication between parents and grown children despite contributing to blurring family boundaries in families with adolescents and being a source of intergenerational conflicts (Mesch 2006b).

Portuguese Families

In recent decades, there has been a redefinition of the family system in Portugal with changes in its structure and functioning because of the democratization process (after the 1974 revolution) and the modernization of Portuguese society, due to its integration into the European Union (Guerreiro 2014). The number of families rose but the number of family members in each family diminished (Guerreiro 2011), with families with only one child as the prevalent configuration (Cunha 2007; Delgado and Wall 2014). Currently, when the first children are born the mother is often more than 30 years old due to the duration of higher education, the prolonged job instability and the rise in marrying age, essentially in the civil form (Guerreiro 2014). The couple with children remains the prevalent configuration in the Portuguese scenario (35.2%; Delgado and Wall 2014), with both spouses working full time out of home (if possible).

In addition, in the aftermath of the 2008 macroeconomic downturn, an increased number of poverty and social exclusion situations (26.6%), due to the soaring level of unemployment (9.8%; Eurostat 2017) emerged in Portugal, especially among the younger groups [26.1% (aged 15 to 24); 11.5% (aged 25 to 34); INE 2017]. Therefore, emerging adults were unable to keep their studies or precarious employment and needed to come back to their parents' home, making a total of 47% of children between 18 and 34 years old that still live with their parents, which tends to create situations of dependence and particular family dynamics (Guerreiro 2014).

Studies with adolescent and emerging adult children

The re-organization of the parent-child relation is a big challenge during adolescence, in which separation and the autonomy process represent primal tasks to these families (Relvas 1996). In this context, the use of ICTs by families in this stage of the family life cycle is causing important changes in family functioning. Empirical studies reported that the pattern of ICT use in families with adolescent children in developed countries varies between email (Padilla-Walker et al. 2012), social networking sites (SNSs) (Huisman et al. 2012), video games (Cardoso et al. 2008; Ferguson 2013), cell phones (Padilla-Walker et al. 2012; Wajcman et al. 2010), and internet. The internet seems to play an important role in the performing of adolescents' developmental tasks, allowing and

understanding of how individuals form their identity and strength of autonomy and create close relationships with peers (Borca et al. 2015). Nevertheless, ICTs also may create some conflicts in parent-adolescent relationships, especially regarding disagreement about time spent using the internet (Huisman et al. 2012), the purpose (Mesch 2006a), rules, and the risks associated with its use (Borca et al. 2015; Sasson and Mesch 2014). Thus, the studies conducted in these families pointed out a change from a "street culture" to a "room culture" (Bacigalupe 2011; Cardoso et al. 2008; Mesch 2006b), visible in situations in which children are isolated in their rooms connecting with friends, instead of spending time with their families. Moreover, the rapid development of technological abilities by adolescents tends to intensify the digital gap between them and their parents (Bacigalupe and Camara 2011; Lanigan 2009; Mesch 2006a). In this scenario, the hierarchy of authority can be deflected to the children, who monopolize ICTs and become the family technological experts on whom other family members rely for technical guidance (Mesch 2006a; Watt and White 1999).

Families with emerging adult children represent the last stage of the family life cycle, which is characterized by the redefinition of roles and relationships, such as the renegotiation of the marital system as a dyad, and multiple entries into and exits from the family system, such as launching grown children (Carter and McGoldrick 2005; Relvas 1996). Furthermore, in recent decades, the transition to this period has been prolonged, due to the rise in the ages of entering marriage and parenthood, the duration of higher education, and the prolonged job instability (Arnett 2004). Thus, a new period of life for young people is now conceptualized from late teens through the mid-to-late twenties called emerging adulthood (Arnett 2004; Arnett et al. 2014). Empirical research addresses a high frequency of ICT use among emerging adults (Coyne et al. 2013) and linked to specific spheres of their lives, especially in romantic relationships (Rappleyea et al. 2014) and in family communication (Ramsey et al. 2013). Thus, they spend more time using the media than doing any other thing, performing activities as surfing the internet, listening to music (Coyne et al. 2013), using short message services (SMS), and phones (Ramsey et al. 2013). Additionally, it seems that ICTs enable key developmental processes (including identity, intimacy, and autonomy), facilitate real-world relationships (Rappleyea et al. 2014) and enhance positive parent-child relationships. However, with progressive autonomy over media time and age permissions, new concerns related to ICT use by

emerging adults arose (Coyne et al. 2013). According to Rappleyea et al. (2014), emerging male adults are more likely to use computer-based technologies (e.g., email) and women more likely to use technologies that have a relational component to them (e.g., cell phones). A gender difference was also found in the transition to parenthood, since mothers use Facebook more than fathers in order to reduce high levels of parenting stress (Bartholomew et al. 2012).

Therefore, based on the family systems approach, the present study evaluates reports from both parents and children that currently live in the same household, in order to understand the relationship between ICTs and family functioning among Portuguese families with adolescent and emerging adult children.

Method

Participants

A total of 157 Portuguese families (N = 476) participated in the study. The first group consisted of families with adolescent children (43.8% of the sample): 95 parents (55% mothers; M_{age} = 44.94 years, *SD* = 5.15; *Mo* = 39 years) and 74 children (65% female; M_{age} = 15.34 years, *SD* = 1.53, *Mo* = 16 years). The second group included families with emerging adult children: 161 parents (55% mothers; M_{age} = 50.78, *SD* = 4.77; *Mo* = 53 years) and 146 children (66% female; M_{age} = 20.90, *SD* = 3.56; *Mo* = 22 years). With respect to socioeconomic status (SES; Simões 1994), most families with adolescent children had a medium-high or high SES (53.3%) and most of families with emerging adult children had a medium SES (49.5%).

Procedure

The data were collected through a written protocol between January and September of 2016, using the snowball method. At least two members of different generations in each nuclear family agreed to participate in the study; they completed consent forms and responded to the protocol (approximately 15 min). The inclusion criteria were: 1) parent(s) with adolescent(s) (12-17 years-old) or emerging adults (18-29 years-old) children; 2) adolescent(s) (12-17 years-old) and emerging adult(s) children (18-29 years-old). The mark to identify the family life cycle was the age of the oldest child and

the criteria to define emerging adult period was based on Arnett's (2014) definition of emerging adulthood.

Preliminary analyses using SPSS 22.0 software were conducted to examine the frequencies, distribution, and correlations between variables. Between and intra group differences were analyzed using independent sample t-tests and the effect sizes were analyzed considering Cohen's (1988) criteria. Multivariate linear regression was used to identify variables related to ICTs use that could predict poor family functioning in both study groups.

Instruments

Sociodemographic questionnaire. A self-report questionnaire was designed to this study to characterize participants concerning to demographic (e.g., sex, age) and family (e.g., composition of nuclear family, socioeconomic status) data.

Emerging Technologies Family Survey (SEFT/ETEF©; Bacigalupe et al., 2014). The original form of SEFT/ETEF was developed to be used by family therapists in order to assess the impact of ICTs in their client's family context. It measures the number of ICTs used by the clinicians, time clinicians spend using internet, family technology adoption impact scale, clinical family problems and clinical technology attitudes (Bacigalupe et al., 2014). Based on the SEFT/ETEF, is currently under construction a new questionnaire to characterize the use of ICTs by the general population. In this study we used some items from the original version to evaluate the number of ICTs used by each participant (e.g., the question "Do you use any of this Information and Communication Technologies" followed by a list of 13 different ICTs to be marked) and the perception of family problems caused by ICTs (e.g., the question "What issues related to ICT have emerged in your family?" followed by a list of 11 problematic situations families encounter when using ICTs – e.g., "Children being isolated in their rooms" –, in which participants responded Yes or No). Higher scores on these two items indicate higher number of ICTs used and higher problems perceived according to ICTs use.

SCORE-15 (Stratton, Bland, Janes, & Lask, 2010). The Portuguese version (Vilaça, Silva, & Relvas, 2014) was used to evaluate different aspects of family functioning. SCORE-15 is a 15 items self-report questionnaire, which comprises three dimensions: Strengths and Adaptability (SA; e.g., "We trust each other"), Disrupted Communication (DC; e.g., "It feels

risky to disagree in our family") and Overwhelmed by Difficulties (OD; e.g., "It feels miserable in our family"). Participants responded on a 5-point Likert scale ranging from 1 (*Describes us very well*) to 5 (*Describes us not at all*). Higher scores correspond to greater difficulties in the family. The internal consistency for the global score (α = .90) and for three subscales was good (α = .85, α = .83, and α = .85 respectively) and slightly higher than in the Portuguese adaptation (α = .84, α = .85, α = .83, and α = .82, respectively).

Results

Frequencies of ICTs used by each family-group and total sample and frequencies of family problematic situations related to ICTs use were identified (percentages are presented in Table 1). Regarding the number of ICTs used by each group from the total of 13, members of families with adolescent children use on average 7.22 (*SD* = 2.56) ICTs and members of families with emerging adult children use on average 6.08 (*SD* = 2.77). An independent-sample t-test was conducted to compare these means and a significant difference between these two groups was found [$t(474) = 4.38$, $p = .001$], but with a small magnitude ($\eta^2 = .04$). The internet was the most reported technology (85.2%) in families with adolescents, followed by portable computer (83.4%) and email (83.4%). In families with emerging adult children, the most reported technology was the mobile phone (79.5%), followed by internet (73%) and email (72.6%).

Members of families with adolescent children reported a significant higher number of problematic situations (*M* = 2.62, *SD* = 1.89) than members of families with emerging adult children [*M* = 2.01, *SD* = 1.65; t (308.49) = 3.55, $p = .001$]. Both groups reported "arguments about time spent using ICTs" as the most problematic situation (74.6% for families with adolescent's children and 60.3% for families with emerging adult children). However, the first group also reported high levels of concern about "children isolated in their rooms" (48.5%) and the second group about "addiction to internet, videogames, and others" (39.1%).

Table 1

Percentage of ICTs used and family problematic situations related to ICTs use by each family-group and total sample (N = 476)

Variable	Families with adolescents	Families with emerging adults	Total sample
	%	%	%
ICTs			
Internet	85.2	73.0	77.3
Email	83.4	72.6	76.5
Mobile phone	67.5	79.5	75.2
Laptop and/or netbook	83.4	69.7	74.6
Social networks	78.1	63.2	68.5
Landline phone	65.1	60.9	62.4
Smartphone	73.4	53.1	60.3
Tablet	58.6	30.9	40.8
Desktop computer	40.8	36.5	38.0
Videoconference	45.6	33.6	37.8
Videogames	24.9	15.6	18.9
Your own website/blog	11.8	10.4	10.9
Problematic situation			
Arguments about time spent using ICT	74.6	60.3	65.3
Addiction to internet, videogames, others	47.3	39.1	42.0
Children being isolated in their rooms	48.5	30.3	36.8
Blurring of work and family life	28.4	22.8	24.8
Minors access inappropriate content	20.1	15.0	16.8
Minors being abused through the internet	19.5	14.7	16.4
Physical health issues due to ICT use	14.8	13.4	13.4
Online infidelity	7.7	3.6	5.0

The analysis of the correlations between the studied variables in the overall sample revealed that the stage of the family life cycle (considered a dummy variable, 0 = families with adolescent children and 1 = families with emerging adult children) was weakly but significantly related to the number of ICTs used (r = -.178, p < .01) and to the problems related to their use (r = -.177, p < .01).

Table 2

Correlations between family functioning, number of problems reported, number of ICTs used and age in families with adolescents and young adults

Fam. with emerging adults Families with adolescents	1	2	3	4	5	6	7
1. Family functioning[a]	-	**.665****	**.894****	**.899****	-.044	**-.290****	.085
2. Strengths and adaptability	**.716****	-	**.376****	**.342****	-.007	**-.130***	.005
3. Disrupted communication	**.926****	**.489****	-	**.837****	-.052	**-.262****	.078
4. Overwhelmed by difficulties	**.907****	**.434****	**.837****	-	-.052	**-.343****	**.125***
5. Number of problems	**.223****	**.187***	.144	**.245****	-	**.254****	-.063
6. Number of ICTs	**-.324****	**-.169***	**-.283****	**-.344****	.155	-	**-.402****
7. Age	.092	-.012	.115	.108	-.135	**-.342****	-

Note. Families with young adults' correlations appear above the diagonal, families with adolescents' correlations appear below the diagonal.
[a]Family functioning measured by the global score of *SCORE-15.*
**p <.05, **p<.01*

Correlations between family functioning, number of problems reported, number of ICTs used and age in families with adolescents and emerging adults are presented in Table 2. Among both family groups, the number of ICTs used was negatively and significantly related to the age of participants, and to family functioning (specially to Disrupted Communication and Overwhelmed by Difficulties dimensions). Among the families with emerging adult children the number of ICTs used revealed a positive and significant correlation with the number of problems related to ICTs used, whereas in the first group this correlation was not significant. Besides, both groups reported its use to be associated with the youngest family members, with a lower overburden of difficulties faced and lower disruptive communication between family members.

Comparing the mean values of the studied variables between parents and children, in both family-groups reported the same significant difference: among families with adolescents, children reported a significantly higher number of ICTs use (M = 8.20, SD = 1.87) than their parents (M = 6.46, SD = 2.77; t (167) = 4.85, p = .001), as well as among the families with emerging adults (children M = 7.39, SD = 2.10; parents M = 5.11, SD = 2.90; t (298) = -7.73, p = .001). In this last group, the parents also reported to be more

overwhelmed by difficulties (*M* = 2.35, *SD* = .84) than their adult children (*M* = 2.07, *SD* = .78; *t* (290) = 2.83, *p* = .005).

Multiple linear regression test was used to identify predictable variables of the poor family functioning (Table 3). In families with adolescents the model explained 18.1% of the variance of the poor family functioning, for which most contributes the fewer number of ICTs and the higher problematic situations related to ICTs use. In families with emerging adults the model only explained 7.7% of the variance of the family functioning, for which only contributes the fewer number of ICTs used.

Table 3

Summary of linear regression analyses of variables predicting family functioning in families with adolescents and emerging adult children

Variables	Families with adolescents (n = 169)			Families with emerging-adults (n = 307)		
	B	SE B	β	B	SE B	β
Number of ICTs	-.105	.021	**-.367***	-.064	.013	**-.283***
Number of Problems	.108	.029	**.280***	.010	.022	.028
R^2		.181			.077	
F		**16,685***			**11,733***	

Note. * $p < .001$

Discussion

The present study intended to understand the relationship between ICTs and family functioning among participants from two different family life cycle stages. This study showed that families are using a variety of ICTs, with an apparent movement from the traditional ICT use (e.g., landline phone, 62.4%) to a new one (e.g., mobile phone, 75.2%), which is in accordance with previous studies (e.g., Stern and Messer 2009). Traditional families are becoming technological families.

Emerging adults and adolescent children were the main ICT users in both family groups studied, which corroborates the existence of a digital gap between the two generations (Brandtzæg et al. 2011). ICTs most used by families with adolescents were: Internet, portable computer, email, and social network sites, which partially corroborates what was found in the literature. However, more than identifying patterns of ICTs used by adolescents, it seems important to know the contexts and the interactions established in their use in order to understand them (Bacigalupe and Camara 2011; Borca et al. 2015). ICTs most used by families with emerging adults were: internet and email through devices such as mobile phones and portable computers, finding which also partially corroborates the literature, especially by the female respondents, as women seem more likely to use technologies that have a relational component to them (Rappleyea et al. 2014). The higher number of ICTs used was related to a better level of family functioning, especially in relation to fewer difficulties overwhelming families. Thus, ICTs may represent a good value in family dynamics, simplifying current daily management activities (e.g., paying bills online, notifying of changes in arrangements in real time, monitoring, and ensuring children's safety, keeping them in permanent touch while apart from their parents and offering a lifeline in an emergency; Devitt and Roker 2009; Hertlein 2012; Watt and White 1999); and preventing families from experiencing some stressful situations (e.g., mismatches, queues for payment). In addition, the higher number of ICTs used was also related to better family communication between family members in the total sample (Devitt and Roker 2009; Lanigan 2009), which leads us to think that the diversity of tools available increased multiple ways in which it is possible to communicate (Stern and Messer 2009) and families are using this to their own benefit. On the other hand, the higher number of ICTs was revealed to be associated with a range of problems reported according to its use; this is also particularly evident in families with emerging adult children. In these families, the problems most reported to ICTs use were "arguments about time spent using ICTs" followed by "addiction problems". This seems to be in accordance with the average time emerging adults spend online and the risk of addiction to the internet that progressive autonomy and permission to access contents (e.g., pornography, violence) might be having (Coyne et al. 2013).

In addition, the parents of emerging adult children reported being more overwhelmed by difficulties. However, ICT use by both parents and emerging adult

children were associated with a lower overburden of difficulties faced by these families, and consequently to a better level of family functioning. One explanation of these results may derive from the fact that many emerging adults in Portugal returned to their parents' home, putting off some life projects, extending the transition to adulthood and burdening their parents (Guerreiro 2014). In the present study, the number of difficulties reported by parents and emerging adult children, may be related not only to a different perspective due to this socio-family scenario and this new transition period of life (Arnett 2004, 2014), but also to the possibility that ICTs may be helping families to cope with some problems and decrease difficulties.

In families with adolescent children, "children isolated in their rooms" was the second most reported problem after "arguments about time spent using ICTs", which is consistent with the literature when focused on situations in which ICTs may reduce family time (Mesch, 2006b) and potentiate the isolation of some family members (Bacigalupe 2011; Cardoso et al. 2008).

According to the model tested, the number of ICTs could be considered a predictor of family functioning. In both family groups, the higher number of ICTs used seems to be associated with a better level of family functioning, specifically about the perception of fewer difficulties and better quality of communication. At least, only in families with adolescent children do the problematic situations related to ICT use seem to be associated with a worse level of family functioning. This result suggests that, more than the quantity of problems reported, the main issue is the impact that each of them has on the family scenario. In this perspective, ICTs should be used in a context of security and responsibility, as families should be aware of the risks associated with their use, but also, at the same time, of the major benefits that ICTs can bring when integrated into everyday family life.

This study has some limitations. First, the discrepancy between sub-sample size might have influenced the results and make us unable to generalize them to families in the same stage of the family life cycle. Second, the fact that the data relied on participants' self-report can be allied to a social desirability influence. Third, the current adaptation of SEFT/ETEF© needs psychometric studies and more items in order to assess the use of ICTs in the general population. Despite these limitations, this exploratory study provided an insight into the relationship of ICT use and family functioning, during specific

stages of the family life cycle. In the future, research should consider not only the number of ICTs used and problems related to their use, but also the frequency, physical space (e.g., room, living room), and the purpose of use (e.g., professional/academic, entertainment), to give a more accurate measure of ICT use. Furthermore, other stages of the family life cycle should be compared to give a more complete picture of family scenarios.

Concerning clinical practice, ICTs can be conceptualized as a tool to work with families (e.g., prescriptions to improve communication between family members using ICTs; using ICTs in the clinical setting when some family member(s) can only be virtually presented; Bacigalupe et al. 2014; Hertlein et al. 2014). Furthermore, a better understanding of family functioning during different stages of their life cycle allows family therapists working with the families of the 21st century to define best strategies to cope with the influence of ICTs in their life and integrate them into their functioning, while living in a web-connected society. This way, family therapists can help families to reconstruct narratives related to unknown ICTs to useful ones and enhance a positive integration of ICTs into everyday family lives, rather than only focusing on their risks. Besides, parents between the dialectic of ensuring family identity and promoting the autonomy of its members simultaneously, need to feel their power over ICTs, with technology being an excellent mediator of parent-children relationships. Parents can assume their parental authority to negotiate rules with their children, especially according to problematic issues that this study signaled, such as time and physical location of ICT use by children.

For instance, in families with emerging adult children, it seems important to raise parents' awareness of the importance of being more connected with their children in the digital world, improving family interactions and communication level between generations, for example through mobile phones and internet (as they are the most often used in this stage). In families with adolescent children, it seems vital to help parents in (re)negotiating rules, managing limits with their children (e.g., which kind of private information can be shared in the social networking sites) and giving them the progressive autonomy that they need to perform their developmental tasks, reducing the major problems associated with ICT use and consequently improving family functioning in the current and subsequent stages of the family life cycle.

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ICTs use and family functioning: Does the family life cycle stage matter?

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Abstract

Digital technology is known to be changing everyday family life in an unprecedented way. Despite the increase in the empirical studies addressing the interplay between technologies and family functioning in recent years, results regarding the consequences of technology use in family dynamics remain inconsistent, as they are circumscribed to specific family life cycle stages. To fill this gap, this study intends to examine the impact of technology use on family members' perceptions of family functioning, considering the potential moderator effect of the family life cycle. A sample of 564 Portuguese individuals, pertaining to 223 families across five different stages of the family life cycle, filled in self-report questionnaires (QUTIC to measure technologies use; SCORE-15 to assess family functioning). Multilevel linear regression models were conducted. Results showed that family members' technology use varied across different family life cycle stages, and that the higher the number of technologies used daily, the more positive perceptions of family functioning were reported. The relationship between technology use and family functioning was not moderated by the family life cycle stage. This study contributes to a better understanding about the way contemporary families at different stages of their life cycles function in a digital era. Implications of these findings are discussed.

Keywords: Digital technologies, family functioning, family life cycle, multilevel analyses.

Introduction

Digital technologies have advanced more rapidly than any innovation in our history and are infused in the everyday experience of nearly half of the world's population (Hertlein & Twist, 2019). These technologies use a binary code of combinations of the digits 0 and 1, also called bits, which represent words and images. Once this information can easily be compressed, preserved, and speedily transported, Information and Communication Technologies (ICTs) — or technologies in the rest of the paper — have relied on digital methods to transmit messages. For instance, analog signals for many forms of telecommunication (e.g., landline phones) have been replaced by digital ones (e.g., smartphones; cable systems) which enable the development of digital communication networks (Encyclopedia.com, n.d.).

Currently, 93% of American adults use the internet and 80% of individuals in the European Union (28 countries) accessed the internet daily. In Portugal, 89% households have internet access at home, 80% use it daily and 69% use mobile devices on mobility (Eurostat, 2022).

Families are often burdened with the overwhelming use of technologies by some members (Trilar et al., 2018) and its use is changing the everyday family life in an unprecedented way (Hertlein & Twist, 2019; Ponte et al., 2018), creating new interaction scenarios and rearranging current couple and family relational models (Carvalho et al., 2015; Ponte, 2019). According to the realities and needs of the now-digital 21st century, significant adjustments in several dimensions of the family structure and process are being taken (Hertlein & Twist, 2019) through the family life course (Hertlein & Blumer, 2014; Paus-Hasebrink et al., 2019; Ponte, 2019; Trilar et al., 2018). Thus, in the rapid expansion of this new reality, the question to be addressed is how contemporary families at different stages of their life cycles are functioning with technologies.

Technologies and family life

Technologies have the potential to influence various aspects of family life such as the nature of connections between family members, the permeability of family boundaries with professional and public spheres, the (re)definition of rules, the sharing of family rituals and the creation of new ones, the negotiation of how to be together or how to be apart (Hertlein, 2018; Ponte, 2018; Trilar et al., 2018). But despite the increase in the

empirical studies in recent years, there still is no consensus whether technologies have a positive, negative, or mixed impact on family functioning (Carvalho et al., 2015; Hertlein & Twist, 2019).

Technologies across the family life cycle

Based on a systemic perspective, and to better understand the concept of family development and constant evolution, a predictable sequence of transformations in the family organization was defined: the family life cycle (McGoldrick et al., *2016*). A series of categorizations have been proposed in which family members perform specific developmental tasks according to the various goals that each stage of the family life presents them. Different stages (emerging young adults, couple formation, families with young children, families with adolescents, families launching children and moving on at midlife, families in late middle age, families nearing the end of life) and tasks at transition points over the life cycle (e.g., formation of couple system; expansion of family boundaries to include the extended family; realignment of relationships among couple, parents, friends and large community) help to understand changes (e.g., family relationships, membership) in the system itself (*McGoldrick et al.*, 2016). Besides, the presence of technologies as a new element in the households, are bringing families a variety of issues to cope with.

The adoption of technology will influence and vary according to several factors, such as their specific features (e.g., affordability, potential for gratification), individual traits (e.g., age, gender) and families' own characteristics (e.g., geographic distance between family members, family developmental stage) (Ponte, 2019; Trilar et al., 2018). Some authors go further and suggest e-developmental periods (e.g., e-nitiation, e-ndings) across family lifespan, as they consider technologies as a new family member and conceptualize the development of the family system and of each member in relation to this (Hertlein & Blumer, 2014).

For instance, in the stage of couple formation, the two individuals must realign relationships and redefine their boundaries to include a new partner and the extended family (*McGoldrick et al.*, 2016). Technologies may influence the structure and processes of intimate relationships, promoting the initiation and the transition to an off-line environment, and the maintenance of the romantic relationship (Hallam et al., 2019;

Hertlein, 2018). In addition, couples seem more successful in solving conflicts when they manage multiple technologies (Caughlin & Sharabi, 2013). Cell phones, the internet and social networking sites are now a steady part of couple relationships and can contribute to a better connection between the individuals, increasing their communication, but also creating distractions (Hertlein & Twist, 2019; Ponte, 2019; Vaterlaus et al., 2019).

In families with young children, members must reorganize themselves with parental and filial roles by adjusting the couple system to make space for children and realigning relationships with the extended family and social community (*McGoldrick et al.*, 2016). These families are more likely to have a variety of technologies (e.g., smartphone, personal computer, tablet) that are used daily by all family members (Ponte, 2018). These children are growing up in a technological environment and use technologies as part of their daily routines (Paus-Hasebrink et al., 2019), particularly the tablet, which sometimes works as a "babysitter" (Dias & Brito, 2016). Parents have more favorable attitudes towards the internet and are more connected than families without children (Dias & Brito, 2016). On the one hand, parents use technologies to monitor their children and make family plans, progressively adding more technologies as their children develop (Paus-Hasebrink et al., 2019; Ponte et al, 2018). The use of technologies may also increase family time across activities online as they have a great potential in children's development (Vodopivec et al., 2013; Ponte et al., 2018) and increase the efficiency of home-school communication (Heath et al., 2015). But on the other hand, technologies raise important issues for the parents of today's young children with the of potential for access to age-inappropriate content (Livingstone et al., 2014) and the possibility that strangers may contact their children (Ponte et al., 2018) appearing as major concerns.

During a child's adolescence, the flexibility of family boundaries is needed to foster children's independence and to begin shift toward caring of grandparent's (*McGoldrick et al.*, 2016). Literature reports that in recent years, technologies have intersected with key developmental tasks of adolescence, specifically strength of autonomy, construction of relationships with peers and identity development (Borca et al., 2015; Paus-Hasebrink et al., 2019). Adolescents' engagement in online activities has grown significantly, especially communication via social networking sites (SNSs) (D'Arienzo et al., 2019). Technology has become integrated into the entire duration of adolescents' relationships and changed communication between romantic partners. Its use not only predicts a positive quality of

relationship (e.g., emotional connection), but also opens the door to cyber dating abuse (e.g., partner monitoring) (Mosley & Lancaster, 2019) and a decline in face-to-face communication (Vaterlaus, Beckert, & Schmitt-Wilson, 2019). Excessive use of technology can become an addiction (D'Arienzo et al., 2019) and may be associated with behavioral difficulties in adolescents (Gómez et al., 2017; Jenkins et al., 2020) with psychological, academic, social and family implications (Díaz-López et al., 2019). Technologies also may create some conflicts in parent-adolescent relationships, especially concerning time spent using the internet, children isolated in their rooms (Carvalho et al., 2017), family rules and the risks associated with its use (Borca et al. 2015; Díaz-López et al., 2019). Thus, these problematic situations and the fewer number of technologies seem to contribute to poorer levels of family functioning in families with adolescent children, especially ones suffering from disrupted communication and felling overwhelmed by difficulties (Carvalho et al., 2017).

Families launching children and moving on at midlife are essentially intergenerational, characterized with entries into and exits from the system, with the redefinition of adult-to-adult relationships between parents/children and dealing with parents' disabilities (McGoldrick et al., 2016). Nowadays, technologies are essential for emerging adults who are spending hours online every day. Some studies report associations between the number of technologies used and symptoms of depression and anxiety in emerging adults (Primack et al., 2017). Others reveal that dysfunctional use of the internet and social media are directly related to symptoms reflecting greater levels of anxiety (Vannucci et al., 2017), insecure attachment style (D'Arienzo et al., 2019) with a higher level of shyness and need to belong (Prievara et al., 2019). Those studies suggest the use of social media sites may be a way of compensating for the affection and support that is missing from the off-line environment (D'Arienzo et al., 2019; Prievara et al., 2019). Generally, a positive association between the use of technologies and the quality of the relationship for emerging adults and their families was found (Hessel & Dworkin, 2018), in particular when family members do not share the same household (Barrie et al., 2019) which enables the maintenance of close relationships between parents and their children, fostering a sense of connectedness (Bacigalupe & Bräuninger, 2017). The number of technologies that parents and emerging adult children use to maintain their relationship influences communication and relationship satisfaction for emerging adult children

(Schon, 2014). A significantly lower number of technologies is used by these parents, which suggests a digital gap between generations (Barrie et al., 2019) and contributes to poorer levels of family functioning when compared with families with adolescent children (Carvalho et al., 2017).

In families in the stage of late middle age and nearing the end of life, the couple must renegotiate itself as a dyad and its social functioning in the face of physiological decline or the loss of a spouse. (McGoldrick, 2016). Sometimes, in this family life cycle stage, parents become grandparents. Given how, in a globalized world, it is highly likely that grandparents and grandchildren live far from each other, technology enables the maintaining of intergenerational relationships as well building relationships with their grandchildren (Ivan & Hebblethwaite, 2016). Research on technology use in families in later life has received lesser attention than other stages, probably because these individuals are not seen as great consumers of technologies due to the physical barriers they may experience (Adams & Stevenson, 2004; Brandtzæg & Karahasanovic, 2011). However, middle-aged and older adult's social media use for social connection revealed to be a useful protection against age-related cognitive decline in executive functions (Khoo & Yang, 2020). Moreover, older adults with cognitive impairments perceive technologies as useful when they contribute to the satisfaction of social and emotional needs, such as connecting them with close friends or relations, practicing hobbies or performing daily tasks (Blok et al., 2020).

The present study

Interest in researching the relationship between technologies and family life has clearly been growing in recent years. But the body of empirical research has mainly focused on the effects of specific technologies and examined certain dimensions of family functioning and has been limited to specific stages of the family life cycle. In addition, technologies seem to have distinct implications in family life according to the family developmental stage, which may contribute to enlarging the heterogeneous nature of results that have been documented regarding the mixed, negative or positive effects of technology use in regard to family functioning. However, to our knowledge, the potential moderator effect of the family life cycle in this relationship has not been investigated in the literature to date.

Attempting to fill in these gaps, this study intends to shed light on the interplay between the use of technologies (the global number of technologies that participants reported to use, on a weekly/daily basis) and family functioning at different stages of the family life cycle. Our first aim was to investigate whether different technologies are used by family members according to their life cycle. Our second aim was to examine whether family members' perceptions of family functioning were affected in relation to their own technology use, and whether this relationship differed according to the family life cycle stage.

Method

Participants

A total of 564 individuals (57.6% female; *M* age = 41.2, *SD* age = 17.8; 98.9% Caucasian; 72.5% parents) from 223 families distributed across five stages of the family life cycle participated in this study. The majority were married (58%) belonging to intact nuclear family systems (85.5%) comprising three members (38.6%), with a high socio-economic level (38.2%), a high educational level (42.9%) and living in the Central Region of Portugal (73.4%).

Within the couple formation stage (31 families), participants' age ranged between 22 and 45 years of age (*M* = 34.1, *SD* = 7.7). The majority were married (38.7%), had a high socio-economic level (66.7%), were employed full time (82%), and had a higher level of education, holding a Bachelor's, Master's or doctorate degree (87.1%).

In the families with young children stage (33 families), participants' age ranged between 28 and 44 years of age (*M* = 36.2, *SD* = 3.7). Participants were married (*n* = 56, 84.8%), had a high socio-economic level (62%), were employed full time (82%) and had higher education (66%).

In the stage of families with adolescent children (46 families), both parents (57%) and children (43%) participated. Parents were, predominantly, between the ages of 33 and 61 (*M* = 45. 51, *SD* = 5.8), were married (75%), had a high socio-economic level (45%), were employed full time (75%) and were college graduates (30%). The children's age range was between 12 and 17 years old. The majority were students (46%) and attended the 9th grade (61%). Also, both children (46%) and parents (54%) comprise the families with emerging adult children group (70 families). Parents were mostly between the ages

of 42 and 63 (*M* = 51.8, *SD* = 4.1), were married (87.5%), had a medium socio-economic level (2%), were employed full time (78.6%) and did not hold a college degree (69%). Most children were between 18 and 29 years of age (*M* = 22.5, *SD* = 2.5), were students (57%) and held a college degree (47%).

In the families in late middle age stage and nearing the end of life, participants were only parents in an 'empty nest' situation (43 families). Most of them were between 60 and 82 years old (*M* = 70.8, *SD* = 4.9), were married (100%), had a low socio-economic level (53.8%), were retired (86%) and had a low educational level (4th grade, 58.1%).

Procedure

Data were gathered from January 2016 to January 2018 using both face-to-face (*n* = 720) and online (*n* = 128) protocol administration strategies, through a non-probabilistic sampling (Vogt, 1999). The face-to-face protocol was distributed across the continental Portuguese territory, and the online protocol was disseminated through a link on a web platform, shared on several institutional web pages. The inclusion criteria for this study included: being 12 years old or older, having Portuguese nationality, and involving at least two members of the nuclear family participating in the study. Respondents completed consent forms and responded to the protocol. For each family a code was created, common to all its members, which allowed the data aggregation to form the five family groups, each one corresponding to a different family life cycle stage.

The family life cycle stages considered in this study were operationalized as: 1) couple formation, including couples who lived together and did not have children; 2) family with young children, including couples with children under 12 years of age; 3) family with adolescent children, including children aged 12-18 and at least one of their parental figures; 4) family launching children and moving on at midlife, including children 18-30 years of age and at least one of their parental figures; 5) family in later middle age and nearing the end of life, including couples with children over 30 years of age in an empty nest situation. This delimitation was based on the conceptualization of the family life cycle from McGoldrick et al. (2016). But differently from this theoretical framework, for empirical reasons, we opted to combine families nearing the end of life with families in late middle age, and families with emerging young adults with launching children and moving on at midlife, as a way to have multiple family members within the same group

of analysis. Furthermore, in families with young children, only parents were included because children under 12 could not answer the protocol. Moreover, only participants from families with children at the same developmental stage were included in this study – a strategy to avoid the complexity of families within multiple stages of the life cycle.

Instruments

Sociodemographic questionnaire

This study had a designed self-report questionnaire to collect participants' sociodemographic data (e.g., sex, age) and family characteristics (e.g., composition of the nuclear family).

Information and communication technologies use questionnaire (QUTIC; Carvalho et al., 2018)

Based on SEFT/ETEF (Bacigalupe et al., 2014), an instrument that assesses how family clinicians perceived the impact of technologies in the clinical context, QUTIC is currently being adapted to the general Portuguese population (*Questionário de Utilização das Tecnologias de Informação e Comunicação* [QUTIC]; Carvalho et al., 2018). It consists of six parts to explore (1) which technologies individuals use, from a list of 13 (e.g., smartphone, SNSs); (2) for how long each day (e.g., 30 to 60 minutes a day); (3) with which purpose (e.g., communication), and (4) in which context (e.g., home, mobility). It employs a (5) family technology adoption impact scale (FTAIS) to evaluate the perception of the technologies' impact on the family; and a checklist to identify (6) the problematic situations that individuals experience in the family context resulting from the use of technologies. In this study, we used the information provided in the QUTIC's first and second part.

SCORE-15 (Stratton et al., 2014)

This self-report questionnaire provides a global score of family functioning, across 15 items distributed in three dimensions: (1) family resources (e.g., "we're good at finding new ways to deal with difficulties"), (2) family communication (e.g., "in my family we don't tell the truth to each other"), and (3) family difficulties (e.g., "we feel it is difficult to face daily problems"). Participants responded on a 5-point Likert scale ranging from 1 (*describes us very well*) to 5 (*describes us not at all*). Higher scores correspond to greater

difficulties in the family. The Portuguese validation studies showed a good internal consistency for the global score (α = .84), which was also verified for this study (α = .90).

Data Analysis

For the statistical analysis of the data, we used the IBM SPSS Statistics program version 25. Firstly, missing data were found across the items of the QUTIC, ranging from 2.1 to 4.8%, and across the items of SCORE-15, ranging from 1.6 to 3.4%. Despite the reduced amount of missing data, we tested whether missing values were completely at random (MCAR), as this information is deemed more important than the amount of missingness (Tabachnick & Fidell, 2007). Using the IBM SPSS MVA (Missing Values Analysis) module, we conducted Little's MCAR test and verified that the hypothesis that missing data are MCAR was not confirmed, x^2 (1863) = 2074.030, p < .001. Thus, we performed multiple imputations, allowing us to incorporate its uncertainty (Graham et al., 2007; Young & Johnson, 2013). Following specific recommendations on the topic (Graham et al., 2007), we imputed 20 separated datasets.

As this study involved responses from participants belonging to the same family unit, mutually influencing each other's views, and thus likely to provide similar reports in the assessed variables, our data should be considered non-independent from a theoretical point of view (Hox, 2002; Kenny et al., 2006). Accordingly, to deal with the interdependence of our data we used multilevel linear regression models using the SPSS Mixed module. These models allowed us to portion the variability of reports obtained from multiple respondents nested within family groups into between-group differences and within-groups differences (Georgiades et al., 2008). To achieve Aim 1, the models included technology use (weekly and daily) as dependent variables and the stage of the family life cycle as an independent variable. The weekly use of technologies corresponds to the sum of technologies that participants reported using, with a frequency ranging from "one time per week" to "six times per week"; the daily use of technologies corresponds to the sum of technologies that participants reported using with a frequency ranging from "up to 30 minutes per day" to "more than 12 hours per day".

To allow for comparing across all stages of the family life cycle, we computed multiple models varying the reference category. For the sake of simplicity, we have opted to only report the results of the most informative model. To achieve Aim 2, the models

included family members' perception of family functioning as the dependent variable, which corresponded to the individual total score obtained in SCORE-15. The global number of technologies used weekly, the global number of technologies used daily, and the stage of the family life cycle were the independent variables. Again, we computed multiple models, making the reference category of the family life cycle vary, thus allowing a comparison between all stages of the life cycle. To investigate whether technology use differs according to the family life cycle, we added cross-level interactions between the global number of technologies used weekly and daily with the family life cycle stage. Family members' sex, age, and role (parental figures vs. children) were introduced as control variables within all tested models.

Results

Preliminary analyses

The use of each technology considered in this study on a weekly and daily basis is depicted in Figure 1. The landline phone was the technology most used on a weekly basis, whereas the mobile phone, the smartphone, and social networks were the technologies most used daily. Globally, the most used technologies were the mobile phone and the internet, with eBooks being the technology least used by participants.

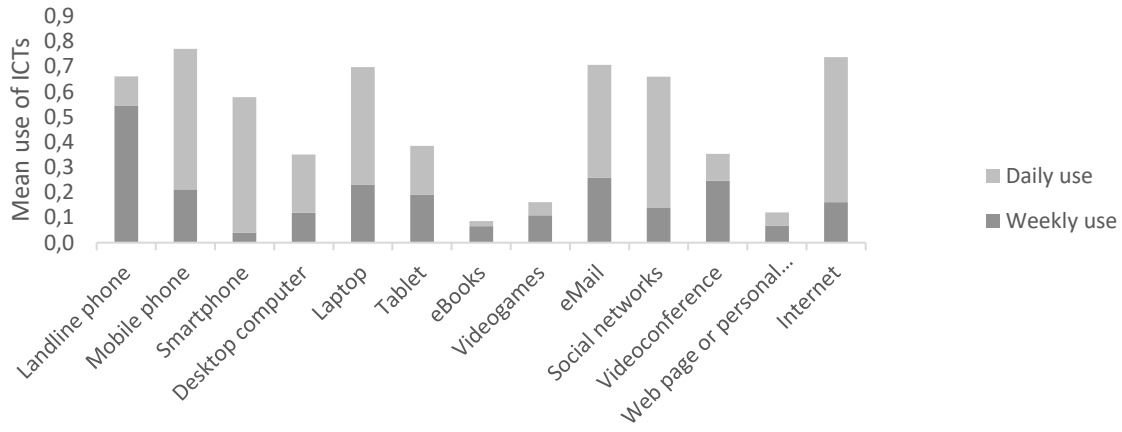

Figure 1

Descriptive Data for Weekly and Daily Use of Specific ICTs by Family Members

Table 1 shows descriptive data for the main study variables. Apart from individuals in the last stage of the family life cycle, the number of technologies used on a daily basis

always exceeded the number of technologies used weekly. Regarding family functioning, the means obtained by the study's participants on the total score of SCORE-15 did not exceed (for the whole sample and subsamples considering family life cycle stages) the reference values obtained by community groups in the Portuguese validation studies (Vilaça et al., 2015).

Table 1

Descriptive Statistics for the Main Variables in the study.

	Total sample	Family life cycle stages						
		Stage 1	Stage 2	Stage 3		Stage 4		Stage 5
	(*n* = 564)	(*n* = 62)	(*n* = 66)	(*n* = 141)		(*n* = 209)		(*n* = 86)
				Parents (*n* = 81)	Children (*n* = 60)	Parents (*n* = 114)	Children (*n* = 95)	
Sex (female)	57.60%	53.20%	50.00%	56.80%	61.70%	59.60%	68.40%	50.00%
Age	41.20 (17.88)	34.10 (7.78)	36.23 (3.73)	45.43 (5.83)	15.25 (1.64)	51.80 (4.06)	22.53 (2.57)	70.8 (4.9)
Weekly use of ICTs	2.40	2.68	3.00	2.11	4.04	1.95	2.16	1.74
Daily use of ICTs	3.88	5.80	5.09	3.71	4.18	2.90	5.54	1.05
Family functioning	2.10	1.98	1.81	2.17	1.98	2.23	2.11	2.21

Note. ICTs = Information and communication technologies; Values represented pooled means except for sex and age. Stage 1 = couple formation; Stage 2 = family with young children; Stage 3 = family with adolescent children; Stage 4 = family launvhing children and moving on at midlife; Stage 5 = family with late middle age and nearing the end of life.

Technology use by family life cycle stage

Weekly use

Table 2

Overview of the Multilevel Model with ICTs Weekly Use as Dependent Variable

	Model 0: Null model for ICTs weekly use					
	Beta coefficients	Standard errors	p-value	-2xlog likehihood	BIC	AIC
	Fixed effects			1803.31	1815.53	2229.683
Intercept (β_0)	2.40	.10	<.001			
	Random effects					
Between family (Level 2)	.61	.19	.001			
Within family (Level 1), *e*	2.82	.23	<.001			
	Model 1: Predicting ICTs weekly use according to the family life cycle					
	Beta coefficients	Standard errors	p-value	-2xlog likehihood	BIC	AIC
	Fixed effects			1763.29	1775.48	1767.29
Intercept (β_0)	5.70	.83	<.001			
Sex (β_1)	-.29	.15	.044			
Age (β_2)	-.02	.02	.324			
Family role (β_3)	.44	.54	.411			
Family life cycle stages						
Stage 1 vs. 4 (β_4)	.73	.43	.085			
Stage 2 vs. 4 (β_5)	1.09	.40	.007			
Stage 3 vs. 4 (β_6)	.78	.25	.002			
Stage 5 vs. 4 (β_7)	.42	.42	.318			
	Random effects					
Between family (Level 2)	.52	.18	.003			
Within family (Level 1), *e*	2.58	.22	<.001			

Note. ICTs = Information and communication technologies; BIC = Bayesian Information Criterion;
AIC = Akaike Information Criterion.

We started by computing a single intercept model (Model 0; Table 2) for the use of technologies on a weekly basis to estimate the intraclass correlation (ICC), which

describes how much of the total variance of technologies used weekly is explained by the grouping structure (i.e., family-level; Hox, 2002). As shown in Table 2, between-family variation was estimated as 0.61 and within-family variation was 2.82. Therefore, the ICC was 17.78% (0.61/3.43), representing the amount of shared variance in the number of technologies used weekly by family members. In the subsequent models, we estimated the fixed effects of the control variables and the family life cycle stage. The results from Model 1 (with stage 4 as the reference category) showed that family members in the stage of families with young children (β = 1.09, *p* = .007) and in the stage of families with adolescent children (β = .78, *p* = .002) used significantly more technologies on a weekly basis as compared with families with emerging adult children. The results from models with other stages as reference categories confirmed that there were no more significant differences in technologies used weekly between the other family stages.

Daily use

The results for the single intercept model (Model 0; Table 3) for the use of technologies on a daily basis revealed an ICC of 37.55%. Thus, the amount of variance shared by family members in the use of technologies was higher when considering daily use as compared with weekly use. Next, we estimated the fixed effects of the control variables and the family life cycle stage in subsequent models. Model 1 (with stage 5 as reference group) showed that, controlling for age, sex, and family role, the number of technologies used daily was significantly different according to the family life cycle stage to which the respondent belonged.

Participants from families with no children, or with children under 12 years old, appeared to use on average more than 3 technologies daily, compared with participants from the older family life cycle stage, whereas participants from families with adolescent and families launching children and moving on at midlife appeared to use on average more than 1, compared with the same group.

The results from models with other stages as references groups showed that only a) participants from stages 1 and 2 (*p* = .133) and b) participants from stages 3 and 4 (*p* = .284) did not significantly differ in the number of technologies used on a daily basis.

Table 3

Overview of the Multilevel Model with ICTs Daily Use as Dependent Variable

	Model 0: Null model for ICTs daily use					
	Beta coefficients	Standard errors	p-value	-2xlog likehihood	BIC	AIC
	Fixed effects			2146.49	2158.710	2150.49
Intercept (β_0)	3.84	.14	<.001			
	Random effects					
Between family (Level 2)	2.73	.49	<.001			
Within family (Level 1), *e*	4.54	.36	<.001			
	Model 1: Predicting ICTs daily use according to the family life cycle					
	Beta coefficients	Standard errors	p-value	-2 X log likehihood	BIC	AIC
	Fixed effects			1951.71	1963.89	1955.71
Intercept (β_0)	13.08	1.37	<.001			
Sex (β_1)	.05	.18	.798			
Age (β_2)	-.02	.02	.277			
Family role (β_3)	1.01	.68	.135			
Family life cycle stages						
Stage 1 vs. 5 (β_4)	3.89	.90	<.001			
Stage 2 vs. 5 (β_5)	3.22	.86	<.001			
Stage 3 vs. 5 (β_6)	1.46	.66	.028			
Stage 4 vs. 5 (β_7)	1.81	.53	<.001			
	Random effects					
Between family (Level 2)	1.11	.28	<.001			
Within family (Level 1), *e*	3.77	.29	<.001			

Note. ICTs = Information and communication technologies; BIC = Bayesian Information Criterion; AIC = Akaike Information Criterion.

Table 4

Overview of the Multilevel Model with Family Functioning as Dependent Variable

	Model 0: Null model for family functioning (SCORE-15)					
	Beta coefficients	Standard errors	p-value	-2xlog likehihood	BIC	AIC
	Fixed effects			847.49	860.00	851.49
Intercept (β_0)	2.10	.04	<.001			
	Random effects					
Between family (Level 2)	.20	.03	<.001			
Within family (Level 1), *e*	.19	.02	<.001			
	Model 1: Predicting family functioning through ICTs use and family life cycle stages					
	Beta coefficients	Standard errors	p-value	-2xlog likehihood	BIC	AIC
	Fixed effects			698.04	710.09	702.04
Intercept (β_0)	3.37	.64	<.001			
Sex (β_1)	-.04	.04	.291			
Age (β_2)	-.00	.01	.676			
Family role (β_3)	-.13	.18	.460			
Number of ICTs weekly used (β_4)	-.01	.01	.626			
Number of ICTs daily used (β_5)	-.03	.11	.013			
Family life cycle stages						
Stage 1 vs. 2 (β_6)	.18	.13	.182			
Stage 3 vs. 2 (β_7)	.32	.14	.017			
Stage 4 vs. 2 (β_8)	.42	.13	.005			
Stage 5 vs. 2 (β_9)	.36	24	.139			
	Random effects					
Between family (Level 2)	.18	.03	<.001			
Within family (Level 1), *e*	.19	.02	<.001			

Note. ICTs = Information and communication technologies; BIC = Bayesian Information Criterion; AIC = Akaike Information Criterion.

Impact of technologies use on family functioning

As presented in Table 4, model 0 corresponds to the single intercept model for family functioning. With the estimation of the ICC, it was found that 51.28% of the total variance of family functioning reports were shared by family members. Model 1 (with stage 2 as reference group) showed that the weekly use of technologies was not significantly associated with family functioning reports (p =.626), in contrast with the daily use of technologies (β = -.03, p = .013). This result suggested that a greater use of technologies on a daily basis was linked to a more positive perception of overall family functioning. Moreover, controlling for the other variables in the model, participants from the stage of families with young children were found to report significant and more positive levels of family functioning, compared with participants from the stages of families with adolescent children (β = .32, p = .017) and families with emerging adult children (β = .42, p = .005). Lastly, we estimated a model including a cross-level interaction between the number of technologies used daily and the family life cycle stage (not shown here). The interaction term turned out to be not statistically significant, suggesting that the relationship between technology use and family functioning is not moderated by the family life cycle stage.

Discussion

Proliferating worldwide in the 21st century, technologies are a recent acquisition to families' lives. The ubiquity of technologies created a lack of consensus about their positive and negative effects in the contemporary family dynamics and an unawareness about how families deal with them throughout their development. In the present study, we aimed to understand the impact of technology use in the family functioning of Portuguese families, across different family life cycle stages: couples' formation, families with young children, families with adolescent children, families launching children and moving on at midlife, and families in late middle age and nearing the end of life.

Regarding our first aim, our results showed that family members' technology use varied across different family life cycle stages. Belonging to families with young and with adolescent children indicated the use of a higher number of technologies on a weekly

basis comparing to families with emerging adult children. Additionally, families in later life had a higher weekly use than a daily one.

When we look into habits on a daily basis, differences were more prominent. Results revealed a greater number of technologies used and a larger effect of the family group with daily use when compared with weekly use. Individuals from couple formation and families with young children groups were identified as the greatest technology users, followed by individuals from families with adolescent children and emerging adult children, and then by families in an empty nest situation. This may suggest a "family stage digital divide" because families in later life not only seem to have a lower rate of technology use when compared with other stages of the family life cycle, but they also show that the simple landline phone was the technology they used most.

The landline phone was the most used technology per week. According some literature, this technology is still used for professional reasons and to contact with distant relatives from home (Bacigalupe, G., & Bräuninger, 2017). The mobile phone and internet were the most used technologies globally, and in addition to smartphone and SNS, the most used daily across all family stages. These technologies could be used within a restricted space or in mobility and are quite inexpensive (Hussain et al., 2017), providing users the possibility to define when and where to communicate and allowing them to manage daily activities in real time, responding in a faster way to the needs of contemporary life (Hertlein & Twist, 2019; Trilar et al., 2018). Therefore, the earlier stages of the family life cycle, such as couple formation and the families with youngsters, seem to reflect the changing world we live in, which is moving from traditional technologies (e.g., landline phone) to emergent ones (e.g., smartphone; SNS) and using a great diversity of them daily.

But is the way families perceive their functioning influenced by the technologies used? Regarding our second goal, results showed that the greater daily use of technologies (not weekly) was associated to a more positive perception of overall family functioning. Thus, our findings about the greater use of technologies and consequent positive perception of family functioning seems to corroborate some literature that is more focused on the positive impact of technologies in family context (e.g., Carvalho et al., 2017; Dias & Brito, 2016; Hertlein & Twist, 2019).

As to whether the family life cycle matters in the relationship between technologies and family functioning, our third aim, the interplay between the use of technologies and family functioning was not moderated by the family life cycle stage. Contrary to what the literature suggests, in this study the relationship between the number and frequency of technologies used by families and their perception of the family functioning must be influenced by other aspects, which goes beyond the influence of shared similar developmental tasks, goals and events at a particular life cycle stage.

The literature shows that in the couple formation stage, technologies may not only provide a connection to two distant people on a daily basis, giving them the opportunity to reinforce their bond and facilitate intimacy, but may also create distractions and distance in relationships (Hertlein & Twist, 2019; Neustaedter et al., 2018; Vaterlaus & Tulane, 2019). In addition, using multiple technologies can help couples to resolve conflicts (Caughlin & Sharabi, 2013). Apparently, this cost-benefit ratio supports our findings not only because this stage presented the second highest level of family functioning, but also because it is reflected by the greater daily technology use by young couples.

According to the literature, families with young children are more likely to have and use several technologies (Ponte et al., 2017; Ponte, 2018; Sami et al., 2017). Our results are in line with this assumption since these families revealed themselves to be greatest technology users on both a weekly and daily basis. The results found in this study indicate that technology use is related to a better level of family functioning in families with young children, despite the growing concerns that technologies pose to parents in this stage (e.g., children's access to age-inappropriate content). More favorable attitudes (Dias & Brito, 2016) may emerge with respect to technology since they are most likely considered as great tools to promote childhood development (Vodopivec et al., 2013; Ponte et al., 2018) and the efficiency of communication (Heath, 2015).

According to our data, families with adolescent children reported poorer perceptions of the family functioning when compared with families with young children. Given that a higher number of technologies used on a daily basis corresponds to a better perception of the family functioning, this group showed a smaller number of

technologies used daily when compared with families with young children, which can explain the lower results found in the dependent variable. In families with adolescents, a negotiation of the power and autonomy between parents and children is required, in which communication can be a challenge (Díaz-López et al., 2019). With technology being an integral part of adolescents' relationships, did parents adapt their communication patterns with children in light of this reality? Like communication difficulties, other issues seem to emerge as a result of technology use in these families, such as the amount of time spent by adolescents using technologies, potential interference with family rules, its association with behavioral difficulties in adolescents (e.g., Díaz-López et al., 2019; Jenkins et al., 2020) steering to a perceived higher perception of these families overwhelmed by difficulties (Carvalho et al., 2017). However, technology allows parents to be in contact with their children and helps adolescents to perform important developmental tasks and have relationships with peers with great levels of emotional connection (Borca et al., 2015; Mosley & Lancaster, 2019), showing that despite this dichotomy, the impact of the technologies used by these families on the perception of family functioning is still positive.

Our results showed that in families launching children and moving on at midlife, lower results of technology use and family functioning were found when compared with the previous stages of the life cycle. These results seem to concur with previous studies (e.g., Carvalho et al., 2017) which pointed to greater difficulties felt nowadays by these families in dealing with stressful situations. Examples of these relate not only to technology use, such as the digital gap between parents and emerging adult children in terms of technologies (Barrie et al., 2019; Schon, 2014) or the association between addiction to technologies and levels of symptoms of anxiety (Vannucci et al., 2017), but also to the many challenges posed by contemporary family life. Of note are the phenomena of being a "sandwich generation", managing the multiples entries into and exits from the nuclear family where an individual is launched, and "boomerangs" who sometimes return to the parental home where grandparents may already be established, given their older age and dependent health condition (McGoldrick et al., 2016). These scenarios also may create situations of troubled family functioning since positive associations were found between the use of technologies and the relationship

quality of children and their families when they do not share the same household (Barrie et al., 2019).

In families in late middle age and nearing the end of life, the number of technologies used by parents on a weekly basis was higher than those used on a daily one. However, these families were the lowest technologies users (weekly and daily) when compared with the others, which express the distance between the elderly and technologies (Adams & Stevenson, 2004; Brandtzæg & Karahasanovic, 2011) and can create a barrier to communication within the family (Trilar et al., 2018). Moreover, the lower number of technologies used was associated a weaker perception of the family functioning. Accessibility, affordability, and acceptability of technologies in terms of daily communication and social connection may contribute to the satisfaction of social and emotional needs (Bloket al., 2020) and inspire relationships beyond the traditional parent-child roles (Hertlein, 2018; Khoo & Yang, 2020). In a digital age, new relationships can be established not only between adult children and their parents but also between parents and their grandchildren (Ivan & Hebblethwaite, 2016), bridging the geographical distance and the emotional differences between these generations (Kooiman & Sheehan, 2014).

In the digital society in which we live today, the fact that families perceive their functioning in a positive way when they use several technologies on a daily but not a weekly basis seems to indicate that technologies are indeed quite integrated into the family's everyday life.

Conclusions

This research intended to shed light on the relationship between technologies and family functioning across different stages of the life cycle, within a systemic perspective. Some limitations should be considered, specifically: only some of family members answered the protocol (e.g., children above 12 years old), the number of respondents was not similar in each family stage, and the number and frequency of technologies were the only items considered to assess technology use. Besides these limitations, it is, to our knowledge, the first study on technologies that considers Portuguese families across different family life cycle stages, navigating into the diversity of existing technologies and evaluating overall family functioning.

Future studies would benefit by considering a more consistent family image and detailed pattern of technology use. Different methodologies can be adopted (e.g., qualitative and mixed methods), using interviews at a family's home to collect data, which can increase the opportunity to include more respondents in each family (e.g., children under 12 years old) and would provide a deeper insight into the use, role and significance of technologies in family functioning. Longitudinal studies with families can help to better understand whether the associations between family functioning and technology use change as families go through the life cycle. For example, it would be interesting to understand whether the parents of young children nowadays will have different tools to deal with the challenges of their future emerging adult children in terms of technology use.

Along the family life cycle stage and the specific challenges families encounter in their developmental process, it seems that families are adapting and still integrating technologies in multiple and evolving ways, reaching their balance regarding technologies and family functioning. However, given how the current Covid-19 pandemic situation has become a critical incident in the lives of these families, future research should assess whether the use of technology has increased among their members during this period and, especially, how families are adapting to this new reality with respect to specific changes occurring in their family dynamics, such as the need for teleworking, shopping and learn from home, for instance. To better understand the "family digital divide" reflected in this study and the complexity of technology use, future studies should include other dimensions of technology usage beyond its number and frequency (e.g., purpose of use) and contemplate other possible moderators (e.g., socioeconomic level). Giving this family digital divide and once a greater use of ICTs daily was linked to a more positive perception of overall family functioning, in clinical practice ICTs use should be encouraged. Not only as prescription to improve family bounds, create grateful moments and establish a new vehicle of communication between generations (e.g., parent-children; grandparent-grandson), but also as a clinical tool to maintain contact with clients in the sessions (e.g., online therapy) and between them (e.g., forming groups in web platforms; share session materials).

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Capítulo 4 | TIC e dinâmica familiar:

Interações à luz de diferentes padrões de utilização

Artigo 6 - *The interplay between digital technologies and family dynamics across different patterns of technology use*

The interplay between digital technologies and family dynamics across different patterns of technology use

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Abstract

Digital technologies (DT) have become a core dimension of our lives, and their use has caused several changes in family dynamics. To better understand the interplay between DT use and family dynamics we tested a model examining this relationship and the potential moderating role of different patterns of DT use. This study involved 825 participants between 18 and 82 years of age (*M* = 41.51, *SD* = 14.29), integrated in three distinct patterns of DT use: Non-Users, Instrumental Users and Advanced Users. Participants responded on the use of ICTs (QUTIC), family functioning (SCORE-15), quality of life (QoL) and family rituals (FRQ). A higher number of perceived problems arising from DT use were associated with more problematic family functioning and to reduced family quality of life. In addition, a more positive perception of DT's global impact was associated with greater levels of family quality of life. Multigroup analyses indicated that these links differed according to the pattern of digital technologies used. Specifically, family functioning was negatively affected by the number of perceived problems only for Instrumental and Advanced users of DT. This model attends to the complexity of the integration of DT and their influence on family dynamics, showing simultaneous interactions which can help clinicians in their practices to identify not only family problems from DT usage and their impact, but also to find strategies adapted to them and enhance an appropriate integration of DT into everyday family lives to promote a better family quality of life.

Keywords: Digital technologies; family dynamics; patterns of digital technologies use; family functioning; family quality of life; family rituals.

Introduction

Digital technologies (DT) have radically changed the way people work, consume, and communicate, and in so doing they have become a common denominator of our lives. People in contemporary society will commonly buy goods and services online (Eurostats, 2021), they will start, maintain, and end relationships via digital devices (Hertlein & Blumer, 2014), and belong to different groups by way of multiple social media platforms (Primack et al., 2017). Rapid advances in technology, along with the growing number of technology users, has made possible the emergence of new patterns of DT usage (Brady et al., 2015; Scherer et al., 2017; Stafford & Hillyer, 2012), allowing for a society organised around networks based on shared interests, values or activities that are not constrained by geographical proximity (Organisation for Economic Co-operation and Development [OECD], 2019).

DT use typically refers to usage of digital media technologies such as smartphones, tablets, television sets, computers, smart speakers, and electronic reading devices (Rideout & Robb, 2019). However, the great variety of digital technologies and the rapid advances in DT, along with the development of distinct use preferences, establish additional difficulties in understanding the complexity of media behaviour (Brandtzæg, 2010; Mauthner & Kazimierczak, 2018). Much of the literature focuses on different DT uses, considering each technology at a time. However, it can be useful to ponder the overlapping technologies in the context of everyday use (Gora, 2009) and organize this complex behaviour into characteristic patterns or typologies of use, considering variables besides the frequency of DT use, as a way to better understand not only its frequency of use, but also how it is used and its consequences (Brandtzæg, 2010). Some studies have already reflected this effort (e.g., Brady et al., 2015; Gómez et al., 2017; Kurek et al., 2017). For example, Brady et al. (2015) found five clusters of families based on their ownership and use of DT: “the tech savvy”, “The wireless users”, “the in-betweeners”, “the wired”, and “the just mobile”. The first one includes the greatest users of a variety of DT, with this use related to better levels of family intimacy that contribute to family relationships maintenance.

Families, as the basis of future societies, are not exempt from the network society phenomenon. The introduction of DT in the everyday family life creates new interaction scenarios and rearranged the family relational models (Ponte, 2019; Trilar et al., 2019),

causing significant changes in the way families function (Hertlein & Twist, 2019; Neustaedter et al., 2018) and in their quality of life (Jenkins et al., 2020; OECD, 2019; Trilar et al., 2017). These changes highlight the importance of studying the interplay between DT use (patterns of DT use, DT perceived impact) and family dynamics (e.g., family functioning, family quality of life, family rituals). Several conceptualisations of the relationship between DT and social change were developed and can be employed as a useful frame to understand how DT can interact with family dynamics (Mauthner & Kazimierczak, 2018). Some studies have applied a couple/family conceptual model to understand how DT impact family life. For example, the sociotechnological model (Lanigan, 2009), based on an ecological approach, has a bidirectional conceptualisation that focuses the effect of the DT on families and the influence of individual, family and extrafamilial characteristics in the way that those technologies are assimilated in the family context. It comprises three overlapping components within the family system: the characteristics of the technology, individual traits, and family factors, which represent the impact of DT on a specific family and has influences on the exosystem, macrosystem, and chronosystem levels. The Couple and Family Technology Framework (CFT; Hertlein & Blumer, 2014) integrates three broad perspectives in the systemic approach: the ecological (focused on the contextual influence of the relational systems), the structural-functional (which addresses how families are organized to meet their needs), and the interaction-constructionist (that focuses on how family members develop their relationships, communicate with each other, and manage family rituals), which recursively influence one another (Hertlein & Blumer, 2014).

Family functioning can be defined as the process in which members interact with each other to meet basic needs, make decisions, establish rules, and define goals, contributing simultaneously to both the individual's and family's development (Lanigan, 2009). It can be outlined as the capability of a family system to work as a whole and adjust itself to different situations that occur during the life span (normative, unexpected, both), especially those that cause stress (Alarcão, 2000). According to Stratton (2014) these adjustments conducted by families consider three main aspects: family communication, family resources and adaptability, and the overload of difficulties to which it is subject. Diverse studies have shown that technologies have the potential to influence and be influenced by several aspects of the family functioning, such as the

permeability of the family boundaries according to the private and professional/academic spheres (Sharaievska & Stodolska, 2015), the management of daily activities (Messena et al., 2019), the quality of family relationships (Barrie et al., 2018), the communication level within family members (Lanigan, 2009; Ponte, 2019; Vaterlaus et al., 2019), and the redefinition of family rules and roles (Chaudron et al., 2018; Díaz-Lopez et al., 2020). Nevertheless, there is still no consensus as to whether DT have a positive, negative, or mixed impact on the family functioning (Hertlein & Twist, 2019; Lanigan, 2009). For instance, on the one hand, parents use smartphones to monitor their children and make family plans, but on the other hand, technologies present young children with the opportunity to access age-inappropriate content (Livingston et al., 2014) or to have contact with online strangers (e.g., Ponte et al., 2018).Technology use by adolescents and couples predicts a positive quality of their romantic relationships but also can allow for potential situations of cyber dating abuse, such as monitoring one's partner (Hertlein & Blumer, 2014; Mosley & Lancaster, 2019) and create online addictive situations (D'Arienzo et al., 2019), with several family problems associated (Díaz-López et al., 2020). Therefore, these problematic situations, along with the fewer number of technologies used by these families, seem to contribute to poorer levels of family functioning in families with adolescent children, particularly in regard to disrupted communication and feelings of being overwhelmed by difficulties (AUTHOR, 2017). Still, the more frequent DT users (e.g., social networking membership, high frequency of computer and smartphone use) seem to be associated with family relationships and communications by collecting information, and reinforcing contact and intimacy between family members that improve family functioning (Brady et al, 2015; AUTHOR, 2017, 2019; Dinesh & Sriram, 2021).

Family rituals, such as celebrations (e.g., Christmas), traditions (e.g., annual birthday parties), and patterned family interactions (e.g., occurring during family dinners) not only mark important transitions and changes, but also have a protective role in family adjustments (Fiese, 2006; Wolin and Bennett, 1984). These events support the organisation of family life, and stimulate positive communication and interaction between family members, enabling the transmission of family values across generations (Fiese, 2006; Imber-Black & Roberts, 1989). Nowadays, in electronic based relationships, the internet is the mediator in which the ritual is conducted, which implies a structured

time to share it with other family members (Hertlein & Blumer, 2014), a high level of commitment and ability to adapt routines, otherwise they may become tedious (Wolin & Bennett, 1984). In these interactions, DT are integrated as part of family rituals, routines, and traditions. For instance, in long-distance families, social media is currently being used to commemorate family celebrations such as Christmas (e.g., using audio/audio-visual calls), family traditions such as special events (e.g., tagging family members in social posts about these events), and to develop individualized patterned routines (e.g., daily greetings via chat, sharing a meal via videoconference, sharing photographs). These rituals mediated by DT seem to nourish intimacy and emotional connections amongst family members, maintain shared family values (Khvorostianov, 2016; Neustaedter et al., 2018) and create a sense of shared reality and meaning, leading DT to assume an integrative role in the family system (Abel et al., 2020). This was particularly true during the COVID-19 pandemic in which families reinvented rituals and family traditions via DT to compensate for physical distance between family members (Imber-Black, 2020).

The concept of quality of life**,** defined as an "individual's perception of their position in life, in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (World Health Organization Quality of Life [WHOQOL, 1994], comprises several dimensions (e.g., physical, functional, psychological, and social) and has been studied in depth in recent decades. The role of the family as main caregivers and decision makers across the lifespan, with implications in the future of societies, highlighted the need to understand the quality of life of the entire family and extended research focus from an individual to a family perspective (Samuel et al., 2012). Thus, family quality of life can be defined as a multidimensional social construct comprising a dynamic feeling of well-being of the family, communally and subjectively defined and informed by its members, and in which individual and family-level needs interact with each other (Zuna et al., 2010).

A better family quality of life had been associated with a more adaptive family functioning and fewer family difficulties (e.g., Cunha & Relvas, 2014), although the study of the impact of the digital transformation in the family's quality of life is a field that is still quite open for exploration. Only with the consideration of the construct of the individual quality of life was it possible to find associations relating to DT use. For

instance, in adolescents, the use of social networking sites on mobile phones and other devices was associated with lower quality of life in females (Jenkins et al., 2020). With children and adolescents, screen activities were positively associated to a better socio-cognitive development and a better perception of quality of life (Gaspar et al., 2013); however, its excessive use revealed the opposite results (Rideout, 2010).

The present study

According to the literature, the integration of DT by families is changing various aspects of the family dynamics. However, the results from previous empirical research were not consistent, indicating positive, negative, and mixed impacts. Additionally, little research has considered the overlapping of the specific DT used and has taken up variables other than frequency to characterise their use, which can partly explain the different results found. Trying to fill these gaps, in the present study we intended to construct a new conceptual model addressing the interplay between DT and family dynamics. We drew upon the sociotechnological model (Lanigan, 2009) and the couple and family technology framework (CFT; Hertlein & Blumer, 2014) to amplify the interaction between DT and the family system, considering family variables other than the structure and process of the relationships (which the CFT focuses on), such as family rituals and family quality of life (as the sociotechnological model supports). Specifically, we examined the links between individuals' perception of the impact of DT in the family context (according to the number of perceived problems and the perceived global impact arising from its use) and the individuals' perception of three key components of the family dynamics (family functioning, family rituals, and family quality of life). In addition, we considered the potential moderating effect of different patterns of DT use (integrating not only the overlapping of DT used, but also the number, the frequency, the context, and purpose of it use) and included several variables of the family system to provide a better understanding of this interaction. In sum, our study intended to explore the relationship between the perception of DT and the perception of family dynamics in a sample of Portuguese adults, considering different DT patterns of use as a moderator.

Methods

Participants

This study involved 825 participants (60.7% female, 99% Caucasian), ranging from 18 to 82 years of age (*M* = 41.51, *SD* = 14.29). The majority were married (59.9%), single (21.4%) or lived in a *de facto* union (12%). They were essentially employed (74.5%), students (11.8%) and retired (8.6%). Regarding their academic level, the majority had a Bachelor's degree (32.7%), or had the compulsory minimum education of 12 years (22.7%) or a Master's degree (18.8%). Nearly all were living in Portugal (97.0%) and, more specifically, in the central zone of the country (56.7%). The vast majority belonged to nuclear intact families (82%), made up of two (33.1%), three (24.5%) and four (29.8%) members per household. Looking at the family life cycle stages (McGoldrick et al., 2016), the numbers represented covered families with young children (22.8%) and in the new couple stage (17.9%), followed by single emerging young adults (15.6%), families launching children and moving on at midlife (15.1%), families with adolescent children (14.3%), and families in late middle age and nearing the end of life in an empty nest situation (14.3%). The majority had a high socio-economic status (SES; 41.0%), followed by a medium (40.7%) and a low SES (18.3%).

Procedures

This study was integrated into a research project in the University of (blinded for the review) addressing the use of DT and family dynamics. It received approval from the University Ethics Commission, and respondents completed the consent forms. Data were collected using an online (*n* = 513) and face-to-face protocol (*n* = 305) within a non-probabilistic sampling, between January 2017 and January 2019. The face-to-face protocol was distributed across the Portuguese territory and the online protocol was disseminated across a link in a web platform. The inclusion criteria to participate was having Portuguese nationality and being at least 18 years of age. Only one participant per household was selected to guarantee the independence of data, using a specific codification for each nuclear family. The average time needed to answer the protocol was approximately 15 minutes.

Variables and measures

The following variables were considered in this study: DT variables (number of perceived problems and perceived global impact of DT use), Family dynamics variables (family rituals, family functioning, and family quality of life), Patterns of DT used (number of DT, type of DT, frequency, purpose and context of use), and sociodemographic variables (sex, age, SES).

Items addressing DT variables and Patterns of DT use were measured by the (blinded for the review; AUTHOR, 2022). This instrument consists of five questionnaires and a scale. More specifically, four questionnaires concerning: which kind of DT individuals use, from a list of 13 (e.g., smartphone, SNSs); the frequency of use (e.g., once a week; 30 to 60 minutes a day; more than 12 hours a day); the purpose (e.g., social/entertainment, communication, information, healthcare), and the context (e.g., room, living room, in mobility, of use. The instrument (blinded for the review; AUTHOR, 2022) evaluates the individual perception of the global impact of DT use on families. It comprises 10 items (e.g., "ICTs: reduce family time; improve family cohesion; enhance healthy communication; interfere with family norms") with a five-point Likert response scale (1 = strongly agree to 5 = strongly disagree). Given that even items are coded reversed, higher scores indicate a more positive perception of DT in the family context. It had a Cronbach's α of .76 in this study. The final questionnaire enables the identification of problematic situations that individuals experience in the households arising from DT use from a list (e.g., "online infidelity", "blurring of work and family life"). The total of the listed problems generated the final score. In this study, we used the information provided in the whole instrument to outline the following variables.

Number of DT used. The number of DT commented by individuals according to their use. The total number was the sum of the total DT mentioned, from zero to 13.

Type of DT. Identification of each one of the DT used by individuals (e.g., smartphone, videogames, videoconference).

Frequency of use. Considering each DT specified, participants were asked to indicate the average time spent using them. These data were aggregated in four sub-categories: non-users, low (once a week, once-twice a week, three-four times a week, five-six times a week), average (up to 30 minutes a day, 30-60 minutes a day, one-three hours a day)

and high frequency (three-six hours a day, six-nine hours a day, nine-12 hours a day, more than 12 hours a day).

Purpose of use. From a list of six different purposes the participant was asked to indicate the option that best fit the purpose of each DT used.

Context of use. From a list of five contexts, the participant was asked to note the one in which each DT selected was most used.

Global impact of DT. Measured by the instrument (blinded for the review; AUTHOR, 2022), this attitudinal scale evaluates the perceived global impact of DT use in the family context.

Number of problems. The number of the perceived family problems signalized by individuals according to the use of DT was measured by (blinded for the review) final questionnaire.

Family functioning. The Portuguese version of the 15-item self-report questionnaire Systemic Clinical Outcome and Routine Evaluation (SCORE-15; Stratton et al., 2014; Vilaça et al., 2015) was used to assess participants' perceptions of the functioning of their families. A global score of family functioning is given across three dimensions: strengths and adaptability (e.g., "We trust each other"), communication (e.g., "It feels risky to disagree in our family"), and difficulties (e.g., "we feel it is difficult to face daily problems"). Participants responded on a five-point Likert scale ranging from 1 (describes us very well) to 5 (describes us not at all). In this study, higher scores point to greater difficulties in the family. Cronbach's α in this study was .90.

Family Rituals. Were assessed by the Portuguese version of the Family Ritual Questionnaire (FRQ; Fiese & Kline, 1993; Crespo, 2007; Lind, 2012). Participants answered 10 items given in a forced-choice format which assesses family ritual meaning in two settings: annual celebrations and dinnertime (e.g., "Some families regularly eat dinner together" and "Other families rarely eat dinner together"). The participants selected the description that best represented their family and decided whether it was quite true or somewhat true. Scores of 1 to 4 were assigned to the four response options, with higher scores indicating higher levels of family ritual meaning. In this research we used the short version comprising the dinner time and annual celebrations contexts, which, respectively, presented an internal consistency of .68 and .79 in the present study.

Family Quality of Life. The Portuguese version of the Inventory of Family Quality of Life (QoL; Olson & Barnes, 1982; Cunha & Relvas, 2014) was used. This self-report questionnaire provides a global score of the family quality of life. In this study we used the short version for parents, which integrates 20 items concerning to the satisfaction level in four dimensions: Family, Friends and Health (e.g., "…your health"); Time (e.g., "…time for yourself"); Media and Community (e.g., "…quality of the films"); and Financial well-being (e.g., "… the income level"). Participants responded on a 5-point Likert scale (ranging from 1 "Dissatisfied" to 5 "Extremely satisfied"). Higher scores indicate a better level of the family's quality of life. Good internal consistency value was obtained in the present study (α = .88).

Sociodemographic variables. Participants completed a self-report questionnaire to collect participants' sociodemographic data (e.g., sex, age) and family characteristics (e.g., family life cycle; McGoldrick et al., 2016).

Data analysis

To conduct the statistical analysis, we used the IBM SPSS Statistics program and Analysis of Moments Structures program (Versions 25). Firstly, descriptive analyses were performed for all variables. More specifically, we calculated percentages, means, standard deviations, ranges, modes, skewness, and kurtosis, considering a reference of retreat from normality an absolute value above 2 to skewness and an absolute value above 7 to kurtosis (West el al., 1996). Secondly, following AUTHOR. (2022), we performed a cluster analysis to determine individual patterns of DT use. The following variables were considered in this analysis: type of DT (e.g., smartphone, tablet), frequency (no, low, average, high use), context (work/school, home, internet hotspots, mobility), and purpose of use (professional/academic, social/entertainment, informational, communicational, shop, healthcare). Specifically, we conducted a two-step cluster analysis given the possibility to merge a non-hierarchical and hierarchical approach, using a large sample and categorical data. Some models were produced using an automatic and a predetermined number of clusters and the log-likelihood method was used to determine the distance between subjects and the number of clusters. A two-clusters option was found to be the best option with a silhouette measure of .4 (Cohrs et al., 2013), but it revealed to be a used or non-used model. So, based on the

inputs that best predicted it (e.g., frequency of internet use, frequency of email use) we determined other models to find one that could best discriminate this pattern. According to data and based on the Brandtzæg (2010) typology of Internet users, the three-cluster model was found to be the best solution, with a silhouette measure of .3. These cluster groups were analysed according to the demographic variables. Statistical assumptions were assured in accordance with Cochran's indications. Categorical data were analysed using chi-squared statistic (χ^2) to association patterns, Cramer's V was used to assess the strength of the effect and the adjusted residuals to show the direction of the association, considered a positive residual above 2.0 when the number of observed cases in cells was significantly higher than expected (Agresti, 2007). Thirdly, we examined the relationship between DT impact and family related variables – family functioning, family rituals, and family quality of life – throughout path analysis. This technique allows the simultaneous assessment of a series of dependence relationships (Hair et al., 2010), therefore being suitable to answer our research questions. To consider the model fit we examined the comparative fit index (CFI) with values above .95 and the root mean square error of approximation (RMSEA) with values under .06 showing a good fit (Hu & Bentler, 1999). Multigroup analyses were conducted to assess whether the model was invariant across the different individual patterns of DT use groups. An initial inspection of missing data was performed across the items of the (blinded for the review), FQoL, QRF, and Score-15, ranging from .0 to 2.3% [(blinded for the review) (1.8%), Number of DT (.1%), Number of problems (1.6%), Score-15 (.5%), FQoL (.0%), FRQ (2.3%)]. Statistical analyses were performed using the full information maximum likelihood (FIML), considering the superiority of this method over traditional approaches (Acock, 2005; Fonseca et al., 2021).

Results

Preliminary Analyses

Following AUTHOR (2022), we consider variations across the way DT were being used and organize this complex media behaviour into patterns of DT use (Brandtzæg, 2010), considering not only several technologies, but also other variables besides the typical frequency of use to characterize it (see Table 1). We found three distinct patterns of DT use, with the variables that contribute most to the pattern definition: internet use

(1.0), email use (.95), text message purpose of use (.92), text message use (.91), text message frequency of use (.91), internet frequency of use (.90), email use (.88), email message purpose of use (.88), text message context of use (.88), email context of use (.86) internet purpose of use (.88), internet context of use (.77) and personal computer use (.69).

Table 1

Clustering Variable Descriptive Statistics Across Groups.

	Group 1 N = 103 (12.5%)	Group 2 n = 222 (26.9%)	Group 3 n = 500 (60.6%)	Total n= 825 (100%)
	%	%	%	%
Internet				
No use	100.0%	20.3%	1.4%	18.8%
Use	0.0%	79.7%	98.6%	81.2%
Frequency of use				
Low	0.0%	23.0%	12.8%	13.9%
Average	0.0%	48.2%	56.8%	47.4%
High	0.0%	8.6%	29.0%	19.9%
Purpose				
Professional/academic	1.0%	22.1%	33.6%	26.4%
Social/entertainment	0.0%	20.3%	25.0%	20.6%
Information	0.0%	25.2%	37.4%	29.5%
Communication	0.0%	3.6%	1.4%	1.8%
Shopping	0.0%	1.4%	2.0%	1.6%
Healthcare	0.0%	0.0%	0.0%	0.0%
Context				
School/Work	0.0%	16.7%	33.4%	24.7%
Living room	0.0%	33.8%	40.2%	33.5%
Bedroom	0.0%	2.7%	8.0%	5.6%
Internet hotspot	0.0%	2.3%	5.0%	3.6%
Mobility	0.0%	8.6%	12.4%	9.8%
Email				
No use	100.0%	25.2%	0.6%	19.6%
Use	0.0%	74.8%	99.4%	80.4%
Frequency of use				
Low	0.0%	26.6%	22.8%	21.0%
Average	0.0%	32.9%	52.0%	40.4%
High	0.0%	15.3%	24.6%	19.0%
Purpose				
Professional/academic	0.0%	51.4%	74.0%	58.7%
Social/entertainment	0.0%	6.3%	4.8%	4.6%
Information	0.0%	4.5%	5.8%	4.7%
Communication	0.0%	12.6%	15.4%	12.7%

Shopping	0.0%	0.0%	0.0%	0.0%
Healthcare	0.0%	0.0%	0.0%	0.0%
Context				
School/Work	0.0%	36.9%	47.2%	38.5%
Living room	0.0%	28.4%	31.0%	26.4%
Bedroom	0.0%	0.5%	6.6%	4.1%
Internet hotspot	0.0%	0.9%	2.8%	1.9%
Mobility	0.0%	6.3%	12.0%	9.0%
SNS				
No use	98.1%	46.8%	0.4%	25.1%
Use	1.9%	53.2%	99.6%	74.9%
Frequency of use				
Low	1.9%	15.8%	16.2%	14.3%
Average	0.0%	33.3%	67.0%	49.6%
High	0.0%	4.1%	16.4%	11.0%
Purpose				
Professional/academic	1.0%	1.8%	3.0%	2.4%
Social/entertainment	0.0%	38.3%	86.0%	62.4%
Information	0.0%	2.3%	3.0%	2.4%
Communication	1.0%	5.0%	8.0%	6.3%
Shopping	0.0%	0.0%	0.0%	0.0%
Healthcare	0.0%	0.0%	0.0%	0.0%
Context				
School/Work	0.0%	2.3%	8.0%	5.5%
Living room	1.0%	31.1%	56.4%	42.7%
Bedroom	1.0%	1.8%	13.6%	8.8%
Internet hotspot	0.0%	2.7%	4.8%	3.6%
Mobility	0.0%	5.4%	16.2%	11.3%
Smartphone				
No use	96.6%	49.8%	0.0%	30.5%
Use	3.4%	54.1%	100%	69.5%
Frequency of use				
Low	0.9%	7.2%	5.4%	5.3%
Average	2.6%	29.4%	58.7%	40.9%
High	0.0%	13.6%	35.9%	23.3%
Purpose				
Professional/academic	0.9%	11.8%	18.9%	14.0%
Social/entertainment	2.6%	13.3%	42.2%	26.8%
Information	0.0%	2.5%	5.6%	3.8%
Communication	0.9%	19.4%	33.3%	24.0%
Shopping	0.0%	0.0%	0.0%	0.0%
Healthcare	0.0%	0.0%	0.0%	0.0%
Context				
School/Work	0.9%	16.8%	21.1%	17.4%
Living room	0.9%	8.2%	21.9%	14.3%
Bedroom	0.0%	1.1%	5.1%	3.0%
Internet hotspot	0.0%	1.8%	4.2%	2.8%

Mobility	1.7%	19.7%	46.6%	31.2%
Personal computer				
No use	93.1%	29.4%	0.5%	23.3%
Use	6.9%	70.6%	99.5%	76.7%
Frequency of use				
Low	5.2%	24.4%	24.9%	22.9%
Average	1.7%	29.7%	33.6%	27.8%
High	0.0%	16.5%	41.0%	26.9%
Purpose				
Professional/academic	0.9%	39.1%	64.1%	46.7%
Social/entertainment	4.3%	15.8%	24.5%	18.7%
Information	0.0%	8.6%	8.6%	7.4%
Communication	0.0%	2.9%	1.6%	1.8%
Shopping	0.0%	0.7%	0.7%	0.6%
Healthcare	0.0%	0.0%	0.0%	0.0%
Context				
School/Work	0.0%	17.9%	35.0%	24.3%
Living room	3.4%	34.4%	48.7%	37.5%
Bedroom	0.0%	2.2%	9.3%	5.6%
Internet hotspot	0.0%	0.4%	0.9%	0.6%
Mobility	0.2%	2.3%	3.2%	5.7%
Number of technologies				
Low	100.0%	17.6%	0.0%	17.2%
Average	0.0%	77.9%	66.8%	61.5%
High	0.0%	4.5%	33.2%	21.3%

Note. Frequency of use: low (once a week to five-six times a week), average (up to 30 minutes a day to one-three hours a day), high (three-six hours a day to more than 12 hours a day); Number of digital technologies: low (0-4), average (5-8), high (10-13).

Group 1 comprised 103 individuals (12.5%) with residual DT use, and thus they were designated as non-users.

Group 2 integrated 222 individuals (26.9%) and was characterized as being internauts with an average frequency of internet use (from 30 minutes to one-three hours a day; 48.2%). Beside the internet (79.7%) the device most used was email (74.8%), followed by a laptop computer (70.6%) and essentially for academic/professional and informational purposes, in which the living room appeared to be the preferential context of DT use, with the exception to smartphone and email. Thus, this profile was named Instrumental users.

Group 3 comprised 500 individuals (60.6%). Group 3 differs from Groups 1 and 2 in the higher number of DT used (33.2% use between 10 to 13 DT; 99.4% of individuals

use email, 98.6% the internet, 99.5% a laptop computer, 100% a smartphone), and by the high frequency of their use: for instance, 41% use a laptop computer from three-six hours to more than 12 hours a day. Similar to Group 2, various DT were used and oriented according to several activities: professional/academic (74% for email and 64.1% for laptop use), information (37.4% for using the internet to surf in the web), social (86% for text message use) with a preference for the living room as a common context of all DT used, with exception to smartphone (mobility) and email (school/work). Those were designated Advanced users.

Table 2 characterizes these profile groups according to the demographic variables (e.g., age, sex, family life cycle stage, SES).

Table 2

Demographic Characteristic across Clustering Groups

Demographics	Statistic test	Group 1 *n* = 103 (12.5%)		Group 2 *n* = 222 (26.9%)		Group 3 *n* = 500 (60.6%)		Full sample *n* = 825
		%	SR	%	SR	%	SR	%
Sex	$\chi^2 = 35.69$*							
Male		62.1	**+5.1**	44.6	+1.9	32.2	-5.2	39.3
Female		37.9	-5.1	55.4	-1.9	67.8	+**5.2**	60.7
Age	$\chi^2 = 301.97$*							
12-30		1.0	-5.8	12.2	-4.8	33.8	+**8.3**	23.9
31-45		12.6	-6.2	37.4	-1.1	47.8	+**5.2**	40.6
46-60		37.9	+**3.5**	39.6	+**6.3**	14.4	-8.1	24.1
61-75		35.9	+**9.7**	10.8	+0.7	3.6	-7.2	9.6
76-82		12.6	+**8.8**	0.0	-2.4	0.4	-3.8	1.8
Socio economic status	$\chi^2 = 67.52$*							
Low/Average		95.1	+**8.0**	59.0	0.0	51.4	-5.4	58.9
High		4.9	-8.0	41.0	0.0	48.6	+**5.4**	41.1
Academic level	$\chi^2 = 503.34$*							
4th grade		49.5	+**16.8**	3.7	-2.7	1.0	-8.9	7.7
6th grade		17.8	+**9.2**	1.4	-1.7	0.8	-4.6	3.1
9th grade		20.8	+**4.4**	16.9	**+4.7**	3.2	-7.2	9.1
12th grade		6.9	-4.0	30.1	+**3.1**	22.5	-0.1	22.6
Bachelor's degree		1.0	-7.3	32.0	-0.3	39.6	+**5.2**	32.7
Master's degree		0.0	-5.2	11.0	-3.5	26.2	+**6.7**	18.8
PhD		0.0	-2.4	3.7	-0.9	6.3	+**2.5**	4.8
Other		4.0	+**2.9**	1.4	+**0.4**	0.4	-2.4	1.1
Familylife cycle stage	$\chi^2 = 335.43$*							
Emerging adults		1.0	-4.4	8.1	-3.6	22.0	+**6.2**	15.6
Couple formation		0.0	-5.1	13.5	-2.0	23.6	+**5.3**	17.9
Family with young children		0.0	-5.9	14.4	-3.5	31.2	+**7.1**	22.8

Family with adolescent children	11.7	0.8	25.2	**+5.4**	10.1	-4.4	14.3
Family launching children	33.0	+**5.5**	25.7	+**5.2**	6.6	-8.4	15.0
Family in late middle age	54.4	+**12.4**	13.1	-0.6	6.6	-5.5	14.3

Note. SR = standardized residuals; α = .05; *+.-* = positive or negative significant associations between cluster and variable category; χ^2 = chi-squared

**p < .001*

There was a statistically significant relationship between the three clusters and age [χ^2 (8) = 301.97, p = .001, V = .428]. More specifically, the residuals showed a larger contribution of the youngest participants in Cluster 3 (*Adj. Res.* = +8.3 in the 12-30 years of age class) and of the older participants in Cluster 1 (*Adj. Res.* = +9.7 in the 61-75 years of age class and *Adj. Res.* = +8.8 in the 76-82 years of age class). Regarding sex [χ^2 (2) = 35.69, p = .001, V = .208] being a female was a great contribution to Cluster 3 (*Adj. Res.* = +5.2) given that it had a significantly higher percentage of females (67.8%). Concerning SES [χ^2 (2) = 67.52, p = .001, V = .286], there was essentially a lower/average status in the Cluster 1 (*Adj. Res.* = +8.0) and a high status in Cluster 3 (*Adj. Res.* = +5.4). According to the academic level [χ^2 (14) = 503.34, p = .001, V = .556] the lowest academic level (4th grade) was strongly dependent to Cluster 1 (*Adj. Res.* = +16.8). The family life cycle stage [χ^2 (10) = 335.43, p = .001, V = .451] had a sturdy association between Cluster 1 and families in late middle age and nearing the end of life (*Adj. Res.* = +12.4). Thus, as depicted in Table 2, Group 1 (non-users) was mainly made up of males (62.1%) from 46 to 60 years old (37.9%) and from 61 to 75 years old (35.9%). This group had a significant percentage of individuals with a lower/medium SES (95.1%) and an academic level below the 9th grade (67.3%). Just over half belonged to families in late middle age and nearing the end of life (54.4%). Group 2 (instrumental users) was essentially comprised of females (55.4%), with ages between 46 and 60 years of age (39.6%). The SES was largely low/medium (59.0%), and the academic level oscillated between a Bachelor's degree (32.0%) and compulsory minimum education (30.1%). It was principally formed by families with launching children (25.7%) and families with adolescent children (25.2%). Group 3 (Advanced users) was mostly comprised of females (67.8%) between 31 to 45 years old (47.8%) and 12 to 30 years old (33.8%). It had the higher SES registered (48.6%) when compared to the other groups and the percentage of individuals with a higher academic level: Bachelor's degree (39.6%), Master's degree (26.2%) and PhD (6.3%). Families with small children assumed the major proportion of families' configuration (31.2%) followed by couple formation (23.6%) and emerging adults (22.0%). As shown in Table 3, sociodemographic indicators were significantly associated with most of the study variables apart from DT impact (Global impact of DT). Quality of life was significantly associated to all the study variables: positively associated to the global impact of DT and family rituals, and negatively to the number of problems and family functioning (reverse coded items). Family functioning was negatively associated to the family rituals, while problems were negatively associated to the global impact of DT.

Table 3

Descriptive Statistics and Correlations Between the Main Variables and Sociodemographic Indicators.

	M	*SD*	1	2	3	4	5	6	7	8
1. Sex[a]	.61	(.48)	-							
2. Age	41.51	(14.29)	**-.307****	-						
3. SES[b]	1.41	(.49)	.055	**-.090****	-					
4. Number of problems	2.16	(1.84)	.051	**-.250****	**-.111****	-				
5. Global impact of DT	2.95	(.54)	-.059	.023	.033	**-.236****	-			
6. Family functioning	2.13	(.67)	-.068	**.100****	**-.163****	.051	-.061	-		
7. Family rituals	3.44	(.52)	.020	.085*	.077*	-.057	-.008	**-.243****	-	
8. Family quality of life	62.92	(9.84)	**-.123****	**-.098****	**.105****	**-.168****	**.133****	**-.215****	**.138****	-

Note. SES = socioeconomic status

[a]0 = male, 1 = female. [b]0 = low/medium, 1 = high.

*p < .050. **p < .001

Associations between DT and family dynamics

An initial path model was constructed to examine the links between DT perception (number of problems and global impact of DT) and family dynamics perception related variables (family functioning, family rituals and family quality of life). Correlated error terms were allowed between the DT perception variables, as well as between the three family dynamics perception variables, as supported by previous correlational analyses (Table 3) and theoretical assumptions. In addition, we included paths between sociodemographic indicators – sex, age and SES (low/medium vs. high) – and the main study variables that previously showed to be significantly correlated (Table 3).

Table 4

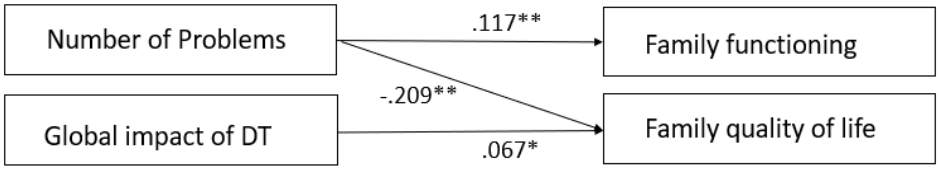
Unstandardized Coefficients and Standard Errors for the Trimmed Model Parameters.

Estimated Parameters	Unstandardized *(SE)*		
Number of problems → Family functioning	.043	(.013)	***
Number of problems → Family quality of life	-1.114	(.191)	***
Global impact of DT → Family quality of life	1.225	(.618)	*
Sex → Family quality of life	-3.640	(.687)	***
Age → Family functioning	.004	(.002)	*
Age → Family quality of life	-.126	.025	***
SES → Family functioning	-.220	(.032)	***
SES → Family quality of life	1.681	(.454)	***

Note. SES = socioeconomic status
*ρ < .050. ** ρ < .010. *** ρ < .001

This model showed a very good fit $\chi^2(7) = 12.301$, $\rho = .091$., CFI = .988, RMSEA = .030, 90% CI [.000, .058], Aikake Information Criterion (AIC) = 86.301. Following Kline (2015), we then removed nonstatistically significant paths. We excluded family rituals from our analysis, as this variable proved to be not significantly associated with any DT perception related variables within the tested model. Accordingly, neither the number of problems brought by DT, or the impact of DT, appeared to influence family rituals. The trimmed model, shown in Figure 1, demonstrated a very good fit $\chi^2(7) = 12.240$, $\rho = .093$, CFI = .986, RMSEA = .030, 90% CI [.000, .057], AIC = 68.240. According to this model, a higher number of perceived problems arising from DT was found to be associated with a more problematic family functioning as well as to reduced family quality of life (Table 4). A more positive perception of DT's global impact was associated with greater levels of family quality of life.

Figure 1 Final Model linking the Study Variables.



Note. Values depicted are standardized regression coefficients. Covariances between error terms were not represented for simplicity.
*p < .05. **p < .010.

The Moderator Role of Patters of DT use

Multigroup analyses confirmed that theses associations differed according to the pattern of DT use: $\Delta\chi^2 = 38.134$, $\rho < .001$. For Group 3 (Advanced users), all the paths revealed to be statistically significant ($\rho < .001$). However, for Group 2 (Instrumental users), the path linking the perceived global impact of DT and family quality of life was found to be non-significant (p =.503). Regarding Group 1 (Non-users), the number of problems arising from DT was found not to be associated with family functioning (p = .734). In addition, a more positive perception of DT global impact was linked with reduced levels of family quality of life (β = -3.29, *SE* = 1.55, ρ = .034). In other words, family functioning appeared to be negatively affected by family problems only for Instrumental and Advanced users and (Groups 2 and 3). Moreover, the family quality of life seemed to be positively influenced by the perceived impact of DT in Group 3 (Advanced users) and negatively influenced in Group 1 (Non-users). Lastly, the number of perceived problems was found to contribute to lower family quality of life for all participants, regardless of their pattern of use.

Discussion

The goal of this study was to test a model addressing the interplay between DT and family dynamics. We specifically sought to shed light on the links between DT related variables – number of perceived problems brought by DT to the family sphere, and perceived family impact of DT – and three key aspects of family dynamics – family functioning, family rituals, and family quality of life. In addition, we examined whether these relationships varied according to the patterns of use of the DT. A preliminary analysis suggested the existence of a variety of DT uses in the sample that could be

organized into different patterns of use. Three distinct clusters emerged that were named according to their distinguishing characteristics: Non-users, Instrumental users, and Advanced users, which have similarities with the user types proposed by Brandtzæg (2010) and AUTHOR. (2022). The asymmetry presented between these three groups seems to mirror the digital gap between generations as seen in Portugal (Brandtzæg, 2010; OECD, 2019; Vaterlaus eta l., 2015).

Path analysis results revealed how different perceived aspects of DT might influence diverse aspects of family dynamics. Firstly, the number of problems arising from DT was found to be associated with reduced levels of family quality of life. Even though studies examining the impact of DT on family quality of life are relatively scarce, this result is in accordance with what was expected. Family problems of any kind, including those related to DT use, might negatively influence the family quality of life, which revealed our results falling in line with the general literature (Gaspar et al., 2013; Jenkins et al., 2020). Secondly, there was an influence of a positive perception of FTAIS in QoL, which is difficult to sustain empirically, because of the lack of research using these two concepts. But given how the digital transformation has created both opportunities and risks for people's well-being (OECD, 2019), a more positive perception of DT's impact may reflect the tendency to see the opportunities to improve people's quality of life despite the risks associated to their use. Thirdly, the higher number of problems brought by DT to the family sphere was found to be associated to a poorer perception of the family functioning. This result is in line with previous studies which showed that in families with young children (AUTHOR, 2019), family problems were related to poorer levels of family functioning, especially across the dimensions of the family's difficulties and strengths. Moreover, the problematic situations related to DT use and the fewer number of DT predicted a worse level of family functioning in families with adolescent children (AUTHOR, 2017). These findings supported the view that DT can impair family functioning when they create problematic situations in the family life.

Contrary to what we expected, family rituals were not significantly influenced by the number of problems arising from DT and by the global perceived impact of DT. As proved in previous studies, routines and rituals assume an integrative role in the family system (Abel et al., 2020) nourishing intimacy and emotional connections amongst

family members (Khvorostianov, 2016). However, in this study, family rituals were not impacted by DT and, in a more positive view, DT do not disrupt them.

The multigroup analysis confirmed that the relationship between the perceived impact of DT and the perceived family dynamics were moderated by different patterns of DT use. Thus, commonly to all groups, as much as the problematic situations according to DT use are being lived in each family live, the individual's perception of the position in life and with regard to the individual goals, expectations, and concerns that characterizes quality of life (WHOQL, 1994), tended to decrease. However, the perception of DT impact had different expressions on the family quality of life across the Non-users and Advanced users groups. Hence, the Advanced users, characterized for being younger and by using a wide range of DT, with a high frequency of their use and oriented to several activities, revealed a greater level of the family quality of life. This seems consistent with previous findings where DT were associated with the improvements in diverse dimensions of the quality of life (e.g., Gaspar et al., 2013; Khvorostianov, 2016). Future studies considering family quality of life may allow for comparison with our results, but this led us to think that DT may be highly integrated in Advanced users' lives, affording greater opportunities to improve their family quality of life. In contrast, Non-users that revealed a more positive attitude concerning DT's impact on family life, showed a lower level of their family quality of life. Following on our previous reflection, it might be explained by the benefits that they perceived in technologies but reported as poorer family quality of life given that they do not benefit from their use.

Regarding family functioning, the Instrumental and the Advanced User groups were those that pointed to poorer family functioning with the increased number of problems perceived in their households arising from DT use. On the one hand, some studies revealed that a greater use of DT was associated to a better perception of the family functioning (e.g., Brady et al., 2015; Messena et al., 2019; Patrão & Fernandes, 2019), but on the other hand, other studies reported heaviest user groups with higher rates of online risks and problematic internet use, especially between youths (D'Arienzo et al., 2019; Gomez et al., 2017). Trying to have a clearer understanding of this result, we supported our analysis into the characteristics' group. Thus, we compared the Non-users' group, in which family problems did not impact family functioning, with

Instrumental and Advanced user groups, which mainly revealed quantitative differences between them and were those in which family problems negatively impacted the family functioning. According to the sociodemographic characteristics, these last groups were more associated to young females, with a higher SES and academic level, and in earlier family life cycle stages. This corroborates the literature that shows a prevalence of family problems brought by DT in youths negatively influencing the family functioning (D'Arienzo et al., 2019; Gomez et al., 2017) and might offer a new insight about the feminine role in our modern society (Khamis & Ayuso, 2021; McGoldrick et al., 2016), especially concerning the frequency and purpose of DT use. Thus, in the literature, being a female was associated with online communication activities (e.g., chats; Gómez et al., 2017; Lanigan, 2009; Ponte et al., 2017) as an extension of the social roles and interests of the offline word (Colley & Maltby, 2008), contrasting with a higher frequency and entertainment use for males (e.g., videogames; Gómez et al., 2017; Ponte et al., 2017). In these groups, activities were mainly according to the professional/academic and entertainment purposes and with an average (Group 2) and high (Group 3) frequency of a diversity of DT. Although the number of DT is commonly associated with a better perception of the family functioning (AUTHOR, 2019), greatest frequencies of DT use are usually associated with poorer ones in consequence of the problematic situations that emerge from their excessive use (D'Arienzo et al., 2019; Díaz-Lopez et al, 2020). In addition, professional/academic purposes, followed by entertainment, are the most reported ones, which may reflect the demands of a modern society in which students and professionals are increasingly working from home (Eurostats, 2021; Wajcman et al., 2010)., Moreover, the predominant context of the use of most DT, with exception to the email use at school/work and the smartphone in mobility, was the living room at home. This let us think about the possibility of the family sphere being occupied by professional and the social activities (Backmanet al., 2021; Wajcman et al., 2010), blurring the boundaries between private and public domains, shrinking the time and diminishing the quality of the family interactions in a space that is predominantly family-based (Hertlein & Blumer, 2014; Lanigan et al., 2009; Vaterlaus et al., 2019). Moreover, with the pandemic situation caused by COVID-19, this issue seems to assume more visibility given how multiple periods of confinement obliged family members to stay at home for lengthy stretches of time, in which several types of activities had to take place in the

home setting, such as working, educational activities, shopping, and connecting with loved ones (Zarco-Alpuente et al., 2021; Pew Research Center, 2022).

Conclusion

With this study we intended to shed a light not only on the scenarios of DT use, but also on how they are being adopted and used (Gora, 2009) and their consequences in the family context. More specifically, considering the overlapping of DT in the context of everyday use, despite the weight of each kind of DT individually, and organizing them into comprehensible patterns of use may help us to better understand the way DT are being currently used. Moreover, in a systemic perspective and based on an ecological and family system approach, this model seems to attend to the complexity of the integration of DT into individuals' lives and their perceived influence in family dynamics. In sum, our findings suggest that positive attitudes regarding DT use are associated with a better family quality of family life in Advanced DT users. Which may call attention to the importance of having positive experiences with respect to DT. But the variable that negatively impacts the family quality of life in all groups considered was the number of problems perceived in each household. In addition, the number of problems also impacted a poorer level of family functioning in Advanced and Instrumental DT users, which underscores the need to identify them and explore their consequences in the family context. As mentioned previously, an asset of this model is the fact that it may attend to the complexity of the integration of DT and its perceived influence in family dynamics, shaping these simultaneous interactions rather than identifying each one at a time, which only can give us a compartmentalized view of this interplay.

The present study has some limitations. First, our sample, being non-probabilistic and non-representative of the Portuguese population, does not enable a generalization of the results. The cross-sectional design can only offer a momentary picture of these intersectional scenarios.

Therefore, future studies should contemplate larger and more representative samples to allow for broader generalization to the whole population. As a predictor variable, the number of perceived benefits according to DT use can be added to have a more consistent and balanced model along with identifying the specific problems reported arising from DT use and the pattern of DT user group associated. To have a

deeper insight into this relationship, this statistical procedure could be complemented with semi-structured interviews to understand the meaning associated with each problem and the significance of their impact in the family context.

For those who work with these situations in a clinical practice setting, these results highlight the need to identify family problems to define preventive and/or interventive systemic strategies, so that individuals, couples, and families can cope more efficiently with these challenges to achieve better family functioning. In addition, stressing the interactional level between this interplay also seems important to determine the strengths that they already use to enhance an effective integration of DT into their family lives, creating more positive attitudes regarding DT use in order to promote a better family quality of life.

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Discussão integradora

"*The new member of the family, technology, is getting older and agile; this member of the family moves fast like a chameleon embedding itself in the psychology of everyday life and the way couples and families do, feel, and think*"
(Bacigalupe, 2019, in Hertlein & Twist, 2019, p. 2)

Esta discussão consiste numa reflexão integradora dos principais resultados encontrados ao longo desta investigação, acerca da influência das tecnologias digitais nas dinâmicas familiares. Neste percurso, de acordo com os objetivos formulados, começamos por refletir sobre o estado da arte para (re)conhecimento do cenário e contextualização da investigação. Face às lacunas encontradas, prosseguimos com a construção de um instrumento de avaliação que nos permitiu recolher dados sobre as TIC. Deste modo, obtivemos diferentes medidas para operacionalizar esta variável, o que nos permitiu não só caracterizar a utilização individual das TIC (em padrões) e avaliar a perceção do seu impacto na vida familiar, bem como analisar a sua relação com a dinâmica familiar, em distintas etapas do ciclo de vida familiar. Culminámos com a proposta de um novo modelo sistémico compreensivo desta interação entre TIC e dinâmica familiar e das suas possíveis implicações.

Tal como explicitado na Introdução, realizamos quatro estudos sequenciais com amostras e metodologias diversas, contribuindo cada um deles para ampliar a perspetiva integradora que com este capítulo se pretende partilhar. Assim, procurando acompanhar a sequência lógica deste trabalho, esta discussão está organizada de acordo com a seguinte estrutura:

a) Construção do Questionário de Utilização das Tecnologias de Informação e da Comunicação (QUTIC) - ponto de partida;

b) Análise dos resultados - balanço do percurso;

1b) A utilização das TIC

2b) A utilização das TIC no dia a dia: impacto na dinâmica familiar

c) Reflexão de possíveis implicações - caminhos no futuro

1c) Contributos

2c) Limitações

3c) Investigação

4c) Prática clínica

Construção do Questionário de Utilização das Tecnologias de Informação e da Comunicação (QUTIC) – ponto de partida

"Nunca ande pelo caminho traçado, pois ele conduz somente até onde os outros já foram."

(Alexander Graham Bell, 1914)

Tal como referido anteriormente, a revisão de literatura realizada acerca da influência das TIC no funcionamento familiar, percebemos que algumas das mudanças consideradas ao nível das dinâmicas familiares se reportam sobretudo a variáveis parcelares do funcionamento familiar (e.g., comunicação familiar, conflito familiar) e em função da utilização de TIC de forma isolada (e.g., internet, redes sociais, *smartphone*). Os estudos circunscrevem-se sobretudo às etapas da infância (e.g., Haddon & Livingstone, 2012; Huisman et al., 2012; Plowman et al., 2010) e adolescência (e.g., Haddon & Livingstone, 2012; Stevenson, 2011; Mesch, 2006a; Huisman et al., 2012), realçando os riscos a que os mais novos estavam expostos com a utilização das TIC (e.g., *cyberbullying*, adição à internet) e assinalando uma variedade de atividades online. Acrescentar que alguns estudos encaram as TIC como um novo subsistema da família (e.g., subsistema tecnológico; Johnson, 2010; Johnson & Puplampu, 2008; Lanigan, 2009), advogando que a adoção que as famílias fazem destas varia em função da sua etapa desenvolvimental, especialmente, pela confrontação com tarefas específicas de cada etapa (Bacigalupe & Lambe, 2011; Gora, 2009; Lanigan, 2009; Mesch, 2006a; Watt & White, 1999), o que no nosso entender, pode em parte explicar a disparidade de resultados encontrados na literatura (Artigo 1). Do ponto de vista metodológico, a inconsistência ao nível dos resultados pode ainda justificar-se em virtude da utilização de instrumentos não estandardizados para a recolha de dados, do diferente tipo de amostras considerada nos estudos (e.g., filhos adolescentes, pais de crianças em idade escolar), da multiplicidade de variáveis estudadas (e.g., utilização de redes sociais, abuso de internet) e das diferentes formas de operacionalização destas (tipo de TIC, frequência de utilização, tipo de atividade online; Artigo 1 e 3).

Desta forma, pareceu-nos relevante expandir o foco de análise em três sentidos: 1) identificar a variedade de utilizações das TIC; 2) avaliar diversas dimensões da dinâmica familiar nesta interação (para além do funcionamento familiar); e 3) considerar o contexto desenvolvimental da família, pontuando diferentes as etapas do seu ciclo vital (McGoldrick, 2016; Relvas, 1996).

Seguindo este fio condutor, de forma a identificar a variedade de utilizações das TIC (ponto 1), procuramos considerar a sobreposição de tecnologias utilizadas na vida do quotidiano, ao invés de estudarmos cada uma isoladamente (Gora, 2009). A literatura sugere organizar este comportamento complexo (a utilização de TIC) através da sistematização de padrões de utilização que permitissem não só identificar os comportamentos de adoção das TIC, mas também de caracterizar a natureza das suas utilizações, para além da dicotomia de uso/não uso (Brandtzæg, 2010; Brandtzæg et al., 2011). Porém, (tanto quanto sabemos) dada a inexistência de instrumentos validados para a população portuguesa que nos permitissem avançar nesta caracterização, prosseguimos com a construção de um questionário de avaliação da utilização das TIC para a população portuguesa: o *Questionário de Utilização das Tecnologias de Informação e da Comunicação* (QUTIC; Artigo 3).

Fizemos um pedido formal ao autor do instrumento *Emerging Technologies and Families Survey's* (ETEF/SETF®; Bacigalupe et al., 2014), dado que este era o que mais se aproximava com o que pretendíamos, solicitando autorização para traduzirmos e o adaptarmos à população portuguesa. Foram realizadas três retroversões independentes até se encontrar consensualmente a versão final que foi aprovada pelo autor da versão original. Contudo, em virtude de algumas alterações que propusemos (e.g., integração de várias TIC em vez de se considerar apenas a internet, maior discriminação das frequências de utilização, retirar-se a escala clínica de atitudes face às TIC [CTA]), optou-se pela construção de um novo instrumento (ainda que fortemente inspirado no ETEF/SETF®; Bacigalupe et al., 2014).

Deste modo, a versão final do Questionário de utilização das Tecnologias de Informação e da Comunicação (QUTIC) passou a incluir seis questionários de autorresposta e uma escala (ver Anexo A). Mais concretamente, quatro questões sobre a utilização das TIC: 1) assinalando que TIC utiliza, a partir de uma lista de 13 TIC; 2) com que frequência a(s) usa (e.g., uma vez por semana, de 30 a 60 minutos por dia, mais de

12 horas por dia); 3) com que finalidade (e.g., social/entretenimento, comunicação, informação) e, 4) em que contexto (e.g., quarto, sala, mobilidade). Estas quatro questões, no seu conjunto, permitiram fazer uma caracterização mais exaustiva da utilização das TIC. A quinta questão assume o formato de uma escala de atitudes face às TIC, permitindo avaliar a perceção individual do impacto das TIC no contexto familiar. Transposta na íntegra do instrumento original que a integra, a Perceção do impacto das TIC na família (*Family Technology Adoption Impact Scale* [FTAIS]) é uma escala pontuada por uma *Likert* de cinco pontos (*1 = concordo totalmente a 5 = discordo totalmente*) com dez itens. Cinco destes, associados a um impacto mais positivo (e.g., "as TIC promovem uma comunicação mais eficaz") e os outros cinco, associados a um impacto mais negativo (e.g., "as TIC interferem com as regras familiares"). Por fim, a sexta questão é relativa à perceção de situações sentidas como problemáticas no próprio contexto familiar em virtude da utilização das TIC, a partir de uma listagem de 11 (e.g., "adição à *internet*, videojogos e/ou outras TIC").

Com o objetivo de aferir as suas propriedades psicométricas, foram realizados estudos de fiabilidade e validade. Na FTAIS, os estudos psicométricos revelaram boas propriedades ao nível da validade de construto (avaliada através de uma análise fatorial de componentes principais onde se destacaram duas subescalas de perceção do impacto das TIC no contexto familiar, uma positiva e outra negativa) da fiabilidade (no que concerne à estabilidade temporal [$t(56) = .74$, $p = .462$] e da consistência interna: $\alpha = .75$ subescala positiva e $\alpha = .78$ subescala negativa). Nos Problemas familiares, a estabilidade temporal teste-reteste [$t(56) = .814$, $p = .419$] também revelou um bom resultado. Adicionalmente, e projetando futuras implicações clínicas e de investigação, não nos cingimos apenas aos estudos psicométricos dos questionários, pelo que efetuamos análises descritivas de todos estes, de forma a obtermos referências na amostra considerada. Mais concretamente, extraímos dados relativos à utilização das TIC (número e tipo de TIC utilizada, frequência, finalidade e contexto de utilização), aferimos uma medida da perceção individual do impacto das TIC no contexto familiar e identificamos os principais problemas assinalados face à sua utilização (em número e descritivo). Por fim, através da análise de clusters, procedemos à sistematização de padrões de utilização que permitiram não só identificar os comportamentos de adoção das TIC (e.g., Não utilizadores, Utilizadores Avançados), como também caracterizar a

natureza das suas utilizações numa amostra da população portuguesa (e.g., utilização de *smartphone* essencialmente para atividades de entretenimento mais do que para fins de comunicação) para além da tradicional dicotomia de uso/não uso (Brandtzæg, 2010; 2011). De salientar ainda o caráter original de termos utilizado uma grande variedade de tecnologias na identificação destes padrões de utilização (Artigo 3), ultrapassando a limitação de serem consideradas maioritariamente tecnologias isoladas (e.g., Brandtzæg, 2010; Brandtzæg etal., 2011; Gómez et al., 2017) e de passarmos a dispor de várias possibilidades de operacionalizar as TIC.

A análise dos resultados – balanço do percurso

"Technology is neither good nor bad; nor is it neutral."
(Kranzberg, 1986)

Afastados do ponto de partida inicial e tendo avançado com sucesso no primeiro sentido considerado (objetivo 1), pretendíamos continuar a expandir o foco de análise do estudo entre as TIC e a dinâmica familiar noutros dois sentidos: avaliar diversas dimensões da dinâmica familiar (para além do funcionamento familiar) e considerar o contexto desenvolvimental da família, pontuando as diferentes etapas do seu ciclo vital. Parte da literatura revista defendia que a adoção e gestão que cada família fazia das TIC variava em função da sua etapa desenvolvimental em virtude de cada uma destas exigir abordagens distintas consoante o tipo de tarefas a cumprir, das necessidades e dos valores familiares partilhados (Bacigalupe & Lambe, 2011; Gora, 2009; Lanigan, 2009; Mesch, 2006b; Watt & White, 1999). Assim, a utilização das TIC poderia estar positivamente associada à coesão entre membros da família numa etapa do ciclo de vida da família (e.g., utilização das redes sociais em famílias com filhos pequenos) e tornar-se negativamente associadas noutra (e.g., utilização das redes sociais em famílias com filhos adolescentes), potenciando situações de conflitos intergeracionais. Isto significaria que a TIC e a atividade seriam as mesmas, mas o impacto destas na família seria claramente distinto. Desta forma, para além desta situação poder justificar

algumas discrepâncias encontradas na literatura, justificava a exploração de outras variáveis para além da(s) TIC em questão, de outras variáveis familiares e de diferentes etapas do ciclo de vida familiar. Assim, procuraríamos alcançar o objetivo 2) delineado neste projeto: analisar a relação entre as TIC e a dinâmica familiar, nas diferentes etapas do ciclo vital da família (CVF). Neste sentido, navegámos ao longo de algumas etapas do ciclo de vida familiar, considerando recortes nas variáveis das TIC (e.g., número de TIC) e da dinâmica familiar (funcionamento familiar), pretendendo obter uma visão mais focalizada nestes subsistemas, ainda que abarcando a complexidade inerente a estas interações.

A utilização das TIC

O estudo sobre o processo de adoção das TIC pelas famílias foca-se sobretudo no papel destas no quotidiano de vida familiar, procurando perceber a influência recursiva da influência das TIC na forma como a família se adapta e as integra (Hertlein & Blumer, 2014; Watt & White, 2000). Do ponto de vista teórico, quer a literatura se situe numa abordagem mais focada na utilização das TIC (*media use theories*), assumindo características autónomas destas e do seu processo de utilização – como a teoria da multiplicidade de TIC, que preconiza a utilização de múltiplas TIC e canais para estabelecer comunicações entre indivíduos (Haythornthwaite, 2005) e a teoria do uso e gratificações (Chen & Katz, 2009; Katz et al., 1973), que radica na satisfação de necessidades através da utilização das TIC - ou se situe numa ótica sistémica da família, pontuando a influência das TIC nas relações e contextos familiares, como a CFT (Hertlein & Blumer, 2014; Lanigan, 2009), têm sido realçadas algumas variáveis como determinantes na utilização individual das TIC. São disso exemplo, a idade, o sexo, o nível socioeconómico e tipo de TIC. Não sendo nosso propósito estudar os fatores que influenciam a utilização das TIC (mas sim os efeitos das TIC na dinâmica familiar), percebemos que ao basearmos a nossa investigação em questionários individuais, algumas destas variáveis estariam indiretamente presentes e, eventualmente, necessitariam de vir a ser controladas (em análises estatísticas). Assim, nos nossos estudos destacaram-se a idade, o sexo e o nível socioeconómico (NSE).

Padrões de utilização das TIC e variáveis sociodemográficas. A idade surgiu em diferentes estudos negativamente associada com a utilização das TIC: relativamente ao maior número de TIC utilizadas (Artigo 3, 5, 6 e capítulo *ebook*) e à maior frequência de utilização destas (Artigo 3, 5 e 6). Esta associação é notória, por exemplo, no Artigo 4 onde o número de TIC utilizadas é significativamente superior, quer no grupo de famílias com filhos adolescentes comparativamente com o grupo de famílias com filhos adultos emergentes, quer no grupo de filhos adolescentes e filhos adultos emergentes quando comparados com os respetivos pais. Assim, revela-se serem os mais novos os grandes utilizadores das TIC em contraste com os mais velhos, o que vem salientar a existência de um fosso digital intergeracional (*digital gap*; Brandtzæg, 2010) na nossa amostra já previamente documentado na literatura (Barrie et al., 2019; Brandtzæg, 2010).

Relativamente ao sexo, ser mulher e mais nova parece estar associado a níveis de utilização mais avançados das TIC (Artigo 3 e 6) e direcionado para atividades diversificadas no que toca às finalidades de utilização (e.g., comunicação, entretenimento, informação), mas com predominância nas esferas profissionais/académicas, o que vem contrastar com a literatura previamente encontrada que associava a estas uma utilização de TIC mais vocacionada para aspetos comunicacionais (e.g., videoconferências, *chats*; Cardoso et al, 2006; Patrão & Hubert, 2016), sobretudo no incremento de relações familiares (Lanigan, 2009), em contraste com uma utilização de mais entretenimento (e.g., videojogos) e avançada (Brandtzæg et al., 2011) por parte de elementos de sexo masculino (Lenhart et al., 2008; Patrão & Hubert, 2016; Van Rompaey et al., 2002). Considerando o comportamento online uma extensão dos interesses e papéis sociais do mundo offline (Colley & Maltby, 2008), esta evidência pode traduzir numa possível mudança de paradigma no que concerne ao género feminino na sociedade atual (e.g., Khamis & Ayuso, 2021; McGoldrick et al., 2016).

O NSE revelou estar associado a um maior número de TIC utilizadas (Capítulo *ebook*; Artigo 6) e a padrões de utilização mais avançados das TIC (Artigo 3 e 6). Apesar de controverso, pois há literatura que refere que independentemente do NSE as famílias têm acesso aos mesmos ou a mais meios digitais (Dias & Brito, 2016; Ponte et al., 2017), os nossos resultados corroboram a literatura que evidencia que uma maior utilização

das TIC está associada com NSE mais elevados (Blinn-Pike, 2009; Brandtzæg, 2010; Brito, 2017) e a idades mais novas (Brandtzæg, 2010), provavelmente face a exigências académicas e laborais dada a elevada frequência na utilização de computadores portáteis e email para estas finalidades entre utilizadores com NSE mais elevado (como sugerem os estudos 2 e 4, respetivamente, Artigo 3 e 6).

Padrões de utilização das TIC e fosso digital intergeracional. Para além das variáveis sociodemográficas, uma outra dimensão surgiu como transversal a alguns dos estudos efetuados: o ciclo de vida familiar. Tal como suportado pela literatura mais focada em aspetos desenvolvimentais, a adoção e utilização das TIC dependeria em grande medida da etapa do ciclo evolutivo em que a família se encontrava (e.g., Bacigalupe, 2011; Davies & Gentile, 2012; Gora, 2009; Lanigan, 2009; Watt & White, 1999). Nos nossos estudos, esta utilização mostrou-se variável ao longo das etapas e demonstrou ter diferentes impactos ao nível do funcionamento familiar consoante a etapa considerada (Artigo 5). Relativamente à sua utilização, constatou-se nos estudos descritivos que as TIC mais utilizadas em famílias com filhos pequenos foram a *internet*, o email, as redes sociais, o computador portátil e o *smartphone*. Em famílias com filhos adolescentes, foram a *internet*, o computador portátil e o email. Nas famílias com filhos adultos emergentes, foram o telemóvel, a *internet* e o email. Análises de regressão mostraram ainda que os casais e as famílias com filhos pequenos evidenciaram uma maior utilização diária de TIC quando comparadas com famílias com filhos adultos numa situação de ninho vazio, assim como as com filhos adolescentes e adultos emergentes quando comparadas com esta última etapa (ninho vazio), ainda que em menor grau (Artigo 5). Por fim, e apesar de os nossos estudos evidenciarem claramente diferentes utilizações das TIC consoante as etapas do ciclo de vida familiar consideradas, os padrões de utilização das TIC reforçaram ainda mais este resultado. Assim, nos padrões de utilização das TIC encontrados nos Estudos 2 e 4, foi revelada uma predominância de famílias com filhos adultos numa situação de ninho vazio, de famílias com filhos adultos emergentes no grupo de Não Utilizadores, de famílias com filhos pequenos, casais em formação e adultos emergentes no grupo de Utilizadores Avançados. Estes resultados vieram novamente acentuar a existência de um fosso digital intergeracional, já

previamente encontrado quando considerada a variável idade e em estudos comparativos entre pais e filhos (Artigo 4).

Relativamente a este fosso digital intergeracional, é de salientar que a percentagem de Não Utilizadores é bastante inferior à de Utilizadores, o que vem de alguma forma mostrar um progresso ao nível da inclusão das TIC nas vivências dos portugueses e corroborar dados estatísticos nacionais e internacionais (INE, 2020; OCDE, 2019). Adicionalmente, dentro do grupo de Utilizadores, aqueles que detêm uma utilização Avançada (Artigo 3 e 6) caracterizaram-se por ter uma elevada frequência de utilização de múltiplas TIC (e.g., internet, email, redes sociais, *smartphone*, computador portátil) com diversas finalidades (e.g., entretenimento, informação), mas destacando-se uma forte componente profissional/académica em contextos como a sala e o trabalho/escola. Este dado parece refletir as vicissitudes tecnológicas do mundo moderno onde as TIC são utilizadas cada vez mais nas escolas, onde alguns elementos da família trabalham recorrendo às TIC, por vezes, em regime de teletrabalho (INE, 2020; Wajcman et al., 2010) e onde a vida online parece ter passado uma esfera omnipresente nas vivências das gerações mais novas (D'Arienzo et al., 2019; Navarro & Helms, 2020; Ortner & Holly, 2019; Paus-Hasebrink et al., 2019). Em claro contraste com gerações mais avançadas, que não se confrontaram com a sua utilização ao longo da vida, nem parecem ter desenvolvido competências tecnológicas para utilização das mesmas (Brandtzæg, 2010; OCDE, 2019) o que, no nosso entender, pode ajudar a explicar este contraste digital. Contudo, a pertença a determinado padrão não é imutável, isto é, os padrões surgem como formas práticas de descrever os complexos comportamentos de utilização das TIC, mantendo fronteiras algo difusas entre si e sendo catalogados de acordo com predominâncias de utilização. Ora, dada a volatilidade destes comportamentos, pertencer hoje a determinado padrão não significa não poder transitar para outro, uma vez que a utilização das TIC depende de múltiplas variáveis que também elas se poderão alterar, como a idade, o NSE, fatores sociais e culturais e outras. Por exemplo, as recentes adaptações que os indivíduos e as famílias fizeram nas suas vivências (e.g., padrões organizacionais, comunicação, estratégias de resolução de problemas) em virtude dos sucessivos estados de confinamento decorrentes da pandemia da COVID-19 (Santos et al., 2020; Imber-Black, 2020), podem refletir-se em alterações ao nível dos padrões de utilização, sobretudo nas gerações mais velhas, que

viram nas TIC uma das poucas possibilidades de manter o contacto com familiares. Nesta linha de pensamento, isto pode ter-se refletido numa diminuição de Não utilizadores, bem como em recombinações de utilizações entre os grupos de utilizadores (e.g., aumento da frequência de utilização das TIC para fins de comunicação, laboral e académica). Futuros estudos poderão dizê-lo.

Ainda relativamente aos padrões de utilização das TIC, há a realçar a preferência de algumas TIC para determinadas atividades, por exemplo, do email e do computador portátil para fins laborais e/ou académicos, do telemóvel e do *smartphone* para fins de comunicação e de entretenimento, apontando teoricamente no sentido da literatura no que concerne à tomada de decisão de utilização das TIC em função das necessidades e gratificações obtidas com o seu uso (Katz et al., 1973), mas também decorrente dos significados e papéis que assumem para quem as utiliza e como o fazem (Hertlein & Blumer, 2014). Sem expectativas prévias face aos contextos de utilização, a sala de casa surge (surpreendentemente) como o denominador comum da maioria das TIC utilizadas por utilizadores Avançados e Instrumentais e/ou Instrumentais e de Entretenimento/Sociais (e.g., internet, redes sociais, computador portátil) independentemente da finalidade ou frequência de utilização. Sabendo que para perceber o papel que as TIC podem assumir para as famílias temos de considerar as interações previamente estabelecidas entre os membros destas (Coyne et al, 2012; Stern, 2009; Stevenson, 2011), mostra-se relevante explorar no futuro a forma como as dinâmicas familiares ocorrem neste contexto e como as famílias se organizam em função desta utilização das TIC (Hertlein & Twist, 2019). Sobretudo, quando os dados sugerem uma certa localização das TIC (Hampton & Wellman, 2003), isto é, que estas famílias podem estar virtualmente conectadas com familiares que vivem fora da casa (e.g., resultados do questionário dos problemas familiares no Artigo 3 e capítulo *ebook*: item a utilização das TIC para contactar a família distante, com pontuações elevadas; Bacigalupe & Camara, 2012; Bacigalupe & Bräuninger, 2017), mas eventualmente desconectadas entre si na mesma sala (e.g., resultados FTAIS: item as TIC melhoram a coesão familiar, com pontuações baixas; Mesch, 2006b; Mullan & Chatziitheochari, 2019). Juntando a isto, temos o facto de estarmos a atravessar uma crise pandémica que tem levado a múltiplos ajustes e mudanças em várias esferas da vida quotidiana com repercussões ao nível das dinâmicas familiares, sendo disso exemplo situações de

sobreposição do teletrabalho à vida familiar (Navarro & Helms, 2020) e o fortalecimento das relações intergeracionais (e.g., avós e netos) através de redes sociais para colmatar a distância (Nouwen & Duflos, 2022).

Em suma, os resultados da totalidade dos estudos empíricos que constam neste trabalho demonstraram de forma inequívoca que há diferentes utilizações das TIC, inclusivamente, suscetíveis de serem classificadas em padrões de utilização. A elevada percentagem de utilizadores Avançados parece sugerir uma aparente mudança de um tipo de utilizadores mais tradicionais, patentes na literatura há uns anos atrás (INE, 2019; Van Rompaey et al., 2002), para uns utilizadores mais digitais (OCDE, 2019).

A utilização das TIC no dia a dia: impacto na dinâmica familiar

Atualmente, é inquestionável que os avanços tecnológicos têm vindo a introduzir uma série de influências específicas na esfera relacional e familiar (Hertlein, 2012). Recorrendo a uma perspetiva ecológica da família, estas influências situar-se-iam no seu contexto envolvente (Bronfenbrenner, 1977), tal como os amigos, os vizinhos, as leis e as políticas vigentes, por exemplo. E ainda que numa lógica sistémica a causalidade assuma um formato circular e recursivo, nesta investigação assumimos, por questões de ordem teórico-conceptual e metodológicas, uma direcionalidade das TIC no sentido de estas influenciarem as dinâmicas familiares. Assim, ao longo dos diversos estudos, as TIC são conceptualizadas (isoladas ou conjuntamente) relativamente ao número, tipo, frequência, contexto, finalidade, perceção do impacto no contexto familiar e perceção dos problemas familiares decorrentes da sua utilização.

O Estudo 2 (Artigo 3) assume-se como um referencial dos valores das variáveis relativas às TIC, como o número de TIC, o tipo, a frequência, a finalidade e o contexto de utilização, o número de problemas decorrente da sua utilização e o valor da escala de impacto das TIC na família (FTAIS). Por exemplo, a análise de correlações no Estudo 2 e 4 (Artigo 3 e 6) mostrou que o número de TIC estava positivamente associado ao número de problemas e este último a uma perceção mais negativa das TIC (FTAIS). A literatura está bastante preenchida com exemplos de situações problemáticas associadas à utilização das TIC (e.g., infidelidade online, acesso a conteúdos desadequados à idade, dependência de videojogos), sendo muitas vezes associada a estes problemas uma utilização excessiva destas (D' Arienzo et al., 2019; Kırcaburun et

al., 2019) para além da quantidade em questão (e.g., Livingstone, 2012; Lumby et al, 2018; Ponte et al., 2017) e da adoção de padrões de comunicação como a *multitasking* e a multiplicidade de TIC (Ohannessian et al., 2014), mais frequentes em indivíduos mais jovens, onde a prevalência de problemas familiares é maior comparativamente com indivíduos em idades mais avançadas (Artigo 4 e 6), o que pode ajudar a justificar esta relação. Relativamente à FTAIS, dado ser uma escala ainda pouco estudada, carece de resultados que suportem esta associação. No entanto, há estudos que referem que em famílias com filhos pequenos os pais têm tendência para ter mais competências digitais e atitudes mais favoráveis face às TIC, em virtude de já terem tido experiências prévias positivas com estas (e.g., Allen & Rainie, 2002; Nikken & Schols, 2015; Wang et al., 2005), ao contrário de pais em etapas mais avançadas do CVF que apenas contactaram com as TIC mais tardiamente. Assim, no seu revês, a vivência de várias situações problemáticas poderá estar associada a uma perceção mais negativa das TIC.

Adicionalmente, foram integradas nesta investigação do ponto de vista estatístico e sob a forma de clusters, diversas variáveis relacionadas com a própria utilização das TIC, mais especificamente, o tipo, a frequência, a finalidade, o contexto (Artigo 3) e o número de TIC (Artigo 6). Da combinação destas, resultaram três padrões distintos de utilização das TIC na amostra da população portuguesa considerada: os Não Utilizadores, os Instrumentais e de Entretenimento/Sociais, e os Avançados (como já mencionados anteriormente).

Depois de introduzidas as variáveis relacionadas com as TIC e de percebermos a forma como referencialmente estão relacionadas entre si, vamo-nos debruçar sobre as variáveis dependentes que, neste estudo, assumem globalmente a designação de dinâmica familiar e integram o funcionamento familiar, a qualidade de vida familiar e os rituais familiares.

TIC e funcionamento familiar em diferentes etapas do ciclo de vida da família. Relativamente ao funcionamento familiar, em virtude dos diferentes estudos sequenciais que foram feitos, é-nos possível percorrer algumas etapas do ciclo de vida familiar e procurar um entendimento mais profundo e desenvolvimental da relação entre as TIC e esta variável. Uma primeira conclusão que pode ser retirada é que o número de TIC utilizadas, quer numa base semanal quer diária, varia de acordo com a

etapa do ciclo vital considerada, corroborando a literatura que defende a ideia de uma utilização diferenciada em função da etapa em questão (Hertlein & Blumer, 2014; Watt & White, 1999). Partindo desta premissa, interessa saber se esta utilização surte diferentes resultados na perceção do funcionamento familiar.

Assim, o estudo realizado com famílias com filhos pequenos até aos oito anos (Capítulo *ebook*), mostrou uma associação entre o aumento do número de TIC e a perceção de uma menor sobrecarga de dificuldades sentidas (dimensão dificuldades do Score-15). Ora, as famílias nesta etapa vivem rodeadas de uma grande diversidade de TIC que utilizam diariamente (Capítulo *ebook*), sendo consideradas na literatura como as mais tecnológicas (Dias & Brito, 2016), quando comparadas com famílias noutras etapas do ciclo de vida familiar (e.g., ninho vazio; Artigo 5). E quanto maior se revela esta utilização diária, melhor é a perceção do funcionamento familiar (Artigo 6), colocando estas famílias no topo não só das utilizações diárias e semanais das TIC, mas também onde o seu reflexo no funcionamento familiar se revelou mais positivo (comparativamente com famílias com adultos emergentes, por exemplo). Adicionalmente, os dados recolhidos através da FTAIS podem ajudar-nos a complementar esta relação uma vez que estas famílias percecionam essencialmente "as TIC como algo que acompanha as mudanças da família ao longo do tempo" e "facilitam as relações entre gerações", apesar de "reduzirem o tempo passado em família". O que vem corroborar a literatura no que toca a esta associação nesta etapa (Livingstone, 2007; Plowman et al., 2010; Stevenson, 2011), mas também levantar o véu no que toca aos problemas sinalizados.

Este estudo realizado com famílias com filhos pequenos até aos oito anos, já tinha dado algumas pistas sobre a associação entre os problemas familiares decorrentes da utilização das TIC e o funcionamento familiar, sugerindo que o aumento do número destes se relacionaria com uma perceção menos positiva do funcionamento familiar, sobretudo no que toca aos recursos para fazer face às dificuldades. Mas foi na etapa com filhos adolescentes que este impacto dos problemas familiares no funcionamento familiar se revelou bastante mais significativo (Artigo 4 e 6), como veremos a seguir. Ainda nas famílias com filhos pequenos, é de salientar a especificidade de problemas assinalados nesta etapa do ciclo vital quando comparados com outras. Por exemplo, o problema mais sinalizado pelas famílias nesta etapa é "o contacto e troca de

informações com pessoas estranhas por parte de menores" seguido por "discussões sobre o tempo de utilização das TIC" e a "falta de limites entre a vida familiar e profissional/académica-escolar". O contacto e troca de informações com pessoas estranhas por parte de menores foi sobejamente o problema mais apontado nas famílias com filhos pequenos e que pouca expressão tem em famílias que se encontram noutras etapas do ciclo de vida familiar, parecendo apontar para uma velha questão, mas num novo formato. Excetuando esta etapa, "as discussões em torno do tempo de utilização das TIC" foram o problema mais sinalizado em todas as etapas consideradas (Artigo 3 e 4), assumindo-se nestas famílias como o segundo problema mais frequente. Isto evidencia que, independentemente da etapa em questão, a domesticação das TIC acarreta não só a ocupação de um espaço, mas também de um tempo familiar (Haddon & Silvestone, 1995; Morley & Silvestone, 1990; Nie, 2001; Silverstone et al., 1992). A "falta de limites entre a vida familiar e profissional/académica-escolar", terceiro problema mais assinalado por estas famílias, parece-nos estar relacionado com a elevada utilização do computador portátil e do email na sala para fins profissionais e/ou académicos, eventualmente associada à possibilidade de se poder trabalhar e estudar a partir de casa (Huisman et al., 2012; Mollborn et al., 2020; Stevenson, 2011; Wajcman et al., 2008; Wajcman et al., 2010), bem como à crescente tendência da comunicação entre escola e família ser efetuada através de dispositivos tecnológicos (Devit & Roker, 2009; Stevenson, 2011). De uma maneira geral, apesar da existência destes problemas específicos nesta etapa em que também os filhos passam a ser utilizadoras ativos das TIC, estas famílias parecem equilibrar nos pratos da balança os problemas com que se confrontam e os aspetos mais favoráveis da utilização destas (e.g., acompanhar as mudanças da família ao longo do tempo; facilitarem as relações entre gerações; serem um potencial veículo de desenvolvimento das crianças), refletindo-se globalmente numa perceção mais positiva do funcionamento familiar (Artigo 5).

A relação entre o número de TIC e a perceção do funcionamento familiar também se verificou na etapa da família com filhos adolescentes e adultos emergentes (Artigo 4 e 6). As primeiras famílias revelaram-se maiores utilizadoras de TIC que as segundas (Artigo 4), e em ambas esta utilização reflete-se numa melhor perceção do funcionamento familiar, sobretudo ao nível de uma comunicação mais eficaz e de uma menor perceção de dificuldades. Tal pode ser facilmente entendido face às múltiplas

formas de comunicação e de interação que as TIC possibilitam, e aos subsequentes benefícios que trazem para a gestão da vida quotidiana (Bacigalupe & Bräuninger, 2017; Melrose et al., 2016; Navarro & Helms, 2020; Stafford & Hillyer, 2012; Stern & Messer, 2009). Quando comparadas com famílias situadas noutras etapas, estas duas mostram uma menor utilização diária das TIC do que os casais em formação e que as famílias com filhos pequenos, e uma maior utilização do que nas famílias com filhos adultos numa situação de ninho vazio (Artigo 5). Portanto, não é de estranhar que o impacto que a utilização das TIC mostra no funcionamento familiar se revele aqui menos positivo nestas duas etapas, quando comparadas com famílias com filhos pequenos e os casais em formação (Artigo 5). Aliás, o reduzido número de TIC utilizadas já se tinha mostrado como preditor de perceções do funcionamento familiar menos favoráveis nas famílias com filhos adultos emergentes e, juntamente com o elevado número de problemas relacionados com a utilização das TIC, nas famílias com adolescentes (Artigo 4). Nestas últimas, os problemas mais sinalizados foram as "discussões sobre o tempo de utilização das TIC", haver "crianças isoladas nos seus quartos a utilizar as TIC" e a existência de situações de "dependência da internet, dos videojogos ou do telemóvel". A identificação destas situações vem corroborar a literatura que aponta esta etapa como sendo uma das mais problemáticas ao nível da utilização das TIC (Bacigalupe, 2011; D' Arienzo et al., 2019; Díaz-Lopez et al., 2020; Mesch, 2006b) e adicionalmente fornecer-nos uma ideia do grande impacto que estas têm na perceção mais negativa do funcionamento familiar nas famílias onde ocorrem. Entre pais e filhos de ambos os grupos familiares, os pais das famílias com filhos adultos emergentes sentem-se mais sobrecarregados com dificuldades, comparativamente aos filhos (Artigo 4) o que pode justificar a associação entre o aumento do número de TIC e os problemas familiares relacionados com a utilização destas, reportados nestas famílias. Isto leva-nos a pensar que estes pais adotaram as TIC numa fase mais tardia das suas vidas, comparativamente com os casais em formação ou as famílias com pequenos, alguns destes últimos já nativos digitais (Prensky, 2001), podendo os pais de adultos emergentes não dispor de competências digitais para a sua utilização nem de um modelo de parentalidade face às TIC (Huisman et al., 2012; Mesch, 2006a; Plowman et al., 2010). Isto, ainda agravado pelo facto da sua (pouca e) atual experiência de vida com as TIC se manifestar, em grande medida, através da existência de problemas decorrentes do seu uso (e.g., situações de dependência da

internet, dos videojogos ou do telemóvel; haver discussões sobre o tempo de utilização da internet; ter um filho *expert* em tecnologia na família; Vanussi et al., 2017; Cardoso et al., 2009; Mesch, 2006a). O que pode explicar a elevada perceção de problemas sentidos pelos pais de adultos emergentes comparativamente com os pais dos adolescentes, onde, aqui sim, o número de problemas sinalizados foi efetivamente superior e se repercutiu em perceções mais desfavoráveis do funcionamento familiar, juntamente com uma menor utilização do número de TIC. Nesta perspetiva, relativamente às famílias com filhos adultos emergentes, as famílias com filhos adolescentes parecem, no nosso entender, encontrar um equilíbrio entre os riscos e as expetativas, entre os problemas que vivem e os benefícios que tiram da utilização das TIC.

Analisando comparativamente várias etapas do ciclo de vida familiar (formação de casal; famílias com filhos pequenos; famílias com filhos adolescentes, famílias com filhos adultos emergentes; famílias com filhos adultos em situação de ninho vazio; McGoldrick et al., 2016) no que toca à influência da utilização das TIC, a nível individual (nível 1) e familiar (nível 2), na perceção do funcionamento familiar, concluiu-se que apesar das diferenças encontradas nesta interação, a etapa não a moderava (Artigo 5). Assim sendo, contrariamente às nossas expetativas e ao que a literatura sugere (Bacigalupe & Lambe, 2011; Gora, 2009; Lanigan, 2009; Mesch, 2006; Watt & White, 1999), a etapa do ciclo de vida familiar não parece influenciar esta relação. Deste modo, outras variáveis estarão a desempenhar esse papel para além das tarefas e dos desafios específicos que cada família encontra em determinada etapa. A questão que se coloca é que variáveis serão.

TIC e dinâmica familiar. O resultado da não moderação desta relação pelas etapas do ciclo de vida familiar fez-nos voltar ao mapa conceptual deste estudo e a olhar de uma forma mais macrossistémica para esta interação, assumindo que as diversas componentes que o sistema multicontextual pode integrar se influenciam recursivamente. Neste sentido, a complexidade desta interação entre as TIC e a dinâmica familiar comporta uma sobreposição de influências sistémicas a nível individual, familiar, contextual, cultural e tecnológico (Lanigan, 2009), que parecem influenciar mais esta interação do que a etapa do ciclo de vida familiar em que esta se

encontra. Por isso, no nosso entender, são fundamentais futuros estudos que comportem algumas destas variáveis como o padrão de utilização individual das TIC, a distância à família nuclear e alterações histórico-sociais, como as situações de confinamento que recentemente vivemos face à pandemia da COVID-19, por exemplo. Mas afinal, que lugar ocupam as TIC neste (macro)sistema? Segundo a perspetiva ecológica de Bronfenbrenner (1977), as TIC estariam integradas no exosistema, isto é, nos ambientes onde a pessoa em desenvolvimento não se encontra necessariamente presente nem é participante ativa, mas cujas relações que neles existem afetam seu desenvolvimento, como as casas dos vizinhos, os serviços comunitários, o local de trabalho dos pais ou a escola dos filhos. Porém, este modelo é anterior à difusão da internet, onde as TIC estavam circunscritas à esfera laboral (Aponte, 2009), antes de proliferaram para outros domínios, e chegarem inclusivamente a serem consideradas novos elementos familiares (Bacigalupe & Lambe, 2011; Sotero et al., 2011). Para além desta migração contextual, os avanços das tecnologias digitais colocaram os utilizadores não só como consumidores de informação, como também lhes passou a conferir a possibilidade de criar, processar, armazenar e difundir a informação digital (Rogers, 1986; Schwab & Davis, 2018). Desta forma, atualmente as TIC podem ser concebidas como integrando um microssistema tecnológico de cada utilizador (microssistema tecnológico; Johnson, 2010), enquanto ambiente onde a pessoa estabelece relações diretas, estáveis e significativas, ainda que as atuais características das TIC (e.g., interconetividade, acessibilidade) permitam a participação individual e até simultânea dos indivíduos em vários sistemas (e.g., casa, escola, trabalho, comunidade), catapultando esta interação para níveis mais complexos do mesosistema, com processos de interação diferenciados, onde os indivíduos assumem papéis específicos dentro de cada sistema considerado (e.g., exosistema, macrosistema; Bronfenbrenner et al., 2006; Johnson, 2010), o que pode ajudar a explicar a multiplicidade de variáveis e fatores intervenientes na interação TIC e família.

Assim, partindo desta visão ecológica e com a perspetiva sistémica em consideração, propusemo-nos encontrar um modelo integrador da interação das TIC na dinâmica familiar. Neste modelo, situar-nos-emos no microssistema familiar, ainda que cientes que os resultados refletirão sempre aspetos relativos aos demais sistemas e das suas possíveis influências. Como variáveis preditoras, considerámos a perceção do

impacto das TIC no contexto familiar (FTAIS) e do número de problemas familiares decorrentes da sua utilização. Para variáveis resposta, foram considerados o funcionamento familiar, os rituais familiares e a qualidade de vida familiar.

Entendida enquanto perceção individual do posicionamento na vida, integração no contexto cultural e no sistema de valores da sua vivência relativamente aos objetivos, expectativas e preocupações (World Health Organization of Quality of Life [WHOQOL], 1994), a qualidade de vida tem revelado valores mais favoráveis com a inclusão das TIC na vida de indivíduos com dificuldades comunicacionais (Ali et al., 2020), com necessidades assistenciais (Colombo et al., 2014) e famílias geograficamente distantes (Khvorostianov, 2016). Por exemplo, funcionando as TIC como facilitadoras sociais do bem-estar, saúde e educação (Castells, 2006; Duncombe et al., 2005; Kivunike et al., 2011). Um estudo mais recente demonstrou que há uma relação entre a utilização das TIC e a qualidade de vida em diversos países da Europa (Nevado-Peña et al., 2019), salientando que a utilização das TIC tem um efeito significativo em algumas dimensões da qualidade de vida (e.g., satisfação com a vida e utilização de serviços públicos). A ausência de estudos sobre a utilização das TIC e do seu impacto ao nível da qualidade de vida familiar, impossibilita-nos o estabelecimento de comparações. No entanto, os resultados por nós obtidos (Artigo 6) parecem ir no sentido dos estudos que versam sobre a qualidade de vida dos indivíduos ao revelarem que em Utilizadores Avançados das TIC, uma perceção mais positiva do impacto das TIC na família (FTAIS) se reflete numa perceção mais positiva da qualidade de vida. Neste nível de utilização mais Avançado das TIC, a expectativa face à qualidade de vida parece ser cumprida em virtude de uma atitude mais positiva face às TIC, contrastando por outro lado com essa falta de oportunidade em melhorar a qualidade de vida, em Não Utilizadores. Este dado é particularmente interessante, o que nos leva a considerar a importância das experiências prévias, diárias e positivas com as TIC na construção de uma atitude mais favorável face a estas (Allen & Rainie, 2002; Nikken & Schols, 2015; Wang et al., 2005) e na promoção da qualidade de vida (OCDE, 2019).

O modelo encontrado (Artigo 6) mostra-nos a existência de uma atitude mais positiva face à perceção do impacto das TIC no contexto familiar (FTAIS) como indutora de uma melhor perceção da qualidade de vida familiar. Por outro lado, o número de problemas familiares decorrentes da utilização das TIC conduz a perceções mais

negativas, quer no funcionamento familiar, como também na qualidade de vida familiar (controlando o sexo, a idade e o NSE). As variáveis preditoras não evidenciaram ligações estatisticamente significativas com os rituais familiares, pelo que foram excluídos do modelo. Esta ausência de relação foi contra as nossas expectativas uma vez que na literatura as TIC têm aparecido associadas a disrupções nas rotinas familiares (Mesch, 2006b; Przybylski et al., 2013; Roberts & David, 2016; Stafford & Hillyer, 2012) ou funcionado como veículos através dos quais os rituais familiares (e.g., partilha de fotografias, videochamadas para celebrar aniversários, marcação de familiares em eventos publicados em redes sociais) são realizados, sobretudo, entre elementos da família geograficamente distantes (Abel et al., 2021; Hertlein & Blumer, 2014; Khvorostianov, 2016).

Considerando que o tipo de utilização das TIC tem revelado impactos significativos ao nível da dinâmica familiar, sobretudo no que toca a situações de uso excessivo ou de dependência online (D'Arienzo et al., 2019; Díaz-López et al., 2020; Patrão, 2017; Patrão & Fernandes, 2019; Young & Nabuco de Abreu, 2011) e uma vez que nesta investigação dispomos dessa variável de utilização sob a forma de padrões diferenciados, considerámo-los neste modelo. Assim, a análise multigrupos contemplou os padrões de utilização das TIC enquanto variáveis moderadoras da relação TIC e dinâmica familiar. Nesta análise, assumimos também a variável número de TIC na constituição destes padrões, uma vez que esta se aproxima mais do padrão de utilização individual do que da perceção de impacto das TIC. Este modelo reflete, assim, uma maior complexidade interacional e um passo evolutivo relativamente aos anteriores.

Esta análise multigrupos veio confirmar que o impacto das variáveis preditoras das TIC nas várias dimensões da dinâmica familiar diferia consoante as variáveis moderadoras, isto é, consoante o padrão de utilização das TIC considerado. Assim, as variáveis que mostraram ter impacto na qualidade de vida familiar foram os problemas familiares e a perceção do impacto das TIC (FTAIS), sendo que o funcionamento familiar foi influenciado também pelos problemas familiares.

Transversal a todos os padrões de utilização das TIC (Estudo 4), os problemas familiares decorrentes do seu uso acarretam perceções menos positivas da qualidade de vida. Apesar de a literatura associar, por exemplo, a perceção de uma mais baixa qualidade de vida face ao impacto do uso excessivo de ecrãs por adolescentes (e.g.,

Rideout, 2010), ficamos com a ideia de que mesmo com frequências de utilização medianas das TIC e num espectro de idades que não se circunscreve apenas à adolescência, a quantidade de problemas que estas podem fazer emergir nas famílias conduzem, inevitavelmente, a perceções menos favoráveis da qualidade de vida.

Na sequência dos resultados anteriormente discutidos, o aumento do número de problemas provoca perceções mais negativas do funcionamento familiar à medida que percorremos os padrões. Ou seja, se no grupo de Utilizadores Instrumentais se verifica uma influência do aumento do número de problemas em perceções mais desfavoráveis do funcionamento familiar, no grupo de Utilizadores Avançados esse efeito mostrou-se ainda mais acentuado. Já em estudos prévios, o número de problemas familiares mostrou-se correlacionado (Capítulo *ebook*) e a impactar negativamente no funcionamento familiar (Artigo 4). Contudo, o facto de estes dados surgirem em paralelo com o número de TIC, cujo impacto se revelou invariavelmente positivo no funcionamento familiar (Capítulo *ebook*; Artigo 4 e 6), parece ter feito contrabalançar o efeito do número de problemas nesta variável familiar, chamando-nos assim a atenção para o efeito positivo de algumas variáveis (e.g., número de TIC) concomitantemente ao negativo de outras (e.g., número de problemas) na forma como as famílias gerem o seu funcionamento. Isto, para além de reforçar os resultados medianos obtidos através da escala de perceção do impacto das TIC no contexto familiar (FTAIS), vem refletir a coexistência de múltiplos impactos na complexidade desta interação, sob a qual as famílias se organizam e desenvolvem as suas relações, mais do que a dicotomia vantagens/desvantagens que muitas vezes é pontuada na literatura.

Neste modelo, dado que o número de TIC se encontra integrado na variável moderadora que assume uma natureza compósita, apenas podemos avaliar o quanto é que esta última afeta a força da interação entre a perceção das TIC e a perceção da dinâmica familiar. Desta forma, surge um efeito mais notório do número de problemas no funcionamento familiar. Este efeito, apesar de visível no grupo de Utilizadores Instrumentais é ainda mais acentuado no grupo de Utilizadores Avançados, o que se reveste de alguma paradoxalidade, uma vez que os estudos prévios apontavam o aumento do número de TIC como gerador de perceções mais positivas das TIC e estes dois grupos são os que revelam maior quantidade de TIC utilizadas. Desta forma, procuraremos respostas analisando estes padrões comparativamente com o primeiro,

onde a influência do número de problemas não se faz sentir em perceções mais negativas do funcionamento familiar.

Assim, do ponto de vista sociodemográfico estes dois grupos de Utilizadores estão mais associados a elementos do sexo feminino, com níveis académicos e socioeconómicos mais elevados, em etapas do ciclo de vida familiar mais precoces e numa faixa etária mais baixa. O que se mostra coincidente com estudos anteriores (Capítulo *ebook*; Artigo 4, onde a existência de um maior número de problemas se revelou associado (Capítulo *ebook*) e impactar negativamente o funcionamento familiar (Artigo 4), em indivíduos mais novos pertencentes a amostras com famílias com filhos até aos oito anos de idade e adolescentes, respetivamente.

Ao explorar o padrão de Utilizadores Instrumentais e Utilizadores Avançados das TIC, apercebemo-nos de algumas semelhanças entre eles com algumas oscilações quantitativas, o que poderá ajudar a explicar a gradação da perceção mais negativa do funcionamento familiar de um padrão para outro face ao aumento do número de problemas percecionado.

No que toca ao número de TIC utilizadas e à frequência de utilização destas, verificou-se um aumento significativo do grupo de Utilizadores Instrumentais quando comparado com o grupo de Utilizadores Avançado, havendo neste último uma taxa de utilização na ordem dos 100% e com frequências de utilização superiores (de três horas diárias a mais de 12h diárias) quando comparadas com utilizações na ordem dos 70-80% das TIC e frequências medianas (do Instrumental). Se, por um lado, o elevado número de TIC utilizadas se refletiria em perceções mais favoráveis do funcionamento familiar (tal como já referenciado anteriormente), por outro, as frequências de utilização mais excessivas poderão estar a ter, precisamente, um papel em sentido contrário, em virtude da associação de níveis excessivos de utilização e da maior probabilidade de ocorrência de problemas familiares face a estes (e.g., D'Arienzo et al., 2019; Díaz-López et al., 2020; Patrão & Fernandes, 2019).

Em relação às finalidades nestes dois grupos de utilizadores, parece destacar-se a esfera profissional/académica e a social em relação à utilização do email e computador portátil, relativamente à primeira, e das redes sociais, no que concerne à segunda. Assim, as finalidades laborais/académicas e de entretenimento realçam-se perante as informativas ou de comunicação. Ironicamente, tal não faz jus à própria designação das

TIC, evidenciando o que nos parece ser mais um indício de mudança de um padrão de Utilização tradicionalmente mais instrumental para um mais de caráter social e de entretenimento.

Relativamente ao contexto de utilização, com exceção do local de trabalho/escola no que toca à utilização do email e do registo de mobilidade em referência ao *smartphone*, a sala de casa parece surgir como o ambiente preferencial de utilização de todas as TIC. Assim, equacionamos a possibilidade de nestes grupos de utilizadores, a esfera familiar poder estar a ser invadida pela profissional/académica (Maeneja & Abreu, 2020; Mesch, 2006b; Shojanoori & Sadidpour, 2021; Wajcman et al., 2010) e que conjuntamente com a utilização individual das TIC para fins de entretenimento, se podem estar a criar condições ideais para limitar o tempo e a qualidade de interações familiares, num espaço que é por excelência familiar (Hertlein & Blumer, 2014; Shumate & Fulk, 2004; Stafford & Hillyer, 2012; Vaterlaus et al., 2019; Lanigan et al., 2009).

A profecia de que os progressivos avanços nas tecnologias digitais criariam TIC cada vez mais personalizadas e que fariam emergir novos padrões de utilização caracterizados pela privatização destas (comparativamente com o uso do telefone fixo, por exemplo; Stafford & Hillyer, 2012), parece assim cumprir-se e potenciar o desencadeamento de conflitos face ao que são as finalidades individuais e as familiares (Gora, 2009). Deste modo, o uso continuado das TIC seria continuamente reforçado em virtude das gratificações pessoais (Katz et al., 1973) obtidas com a sua utilização (e.g., laboral, entretenimento), relegando para segundo plano a satisfação das necessidades familiares. Tal pode justificar a elevada prevalência de problemas encontrados entre participantes mais novos nos nossos estudos, como “discussões em torno do tempo de utilização das TIC”, “situações de dependência à internet, videojogos ou telemóvel” e “falta de limites entre a vida familiar e profissional/académica-escolar”.

Por fim, é fundamental perceber que situações destas não ocorrem no vácuo. A literatura aponta-nos múltiplos fatores que influenciam a utilização das TIC e este trabalho permitiu reconhecer algumas destas utilizações, bem como identificar um vasto leque de influências simultâneas que estas estão a ter na vida das famílias. E que mais do que interpretações que consideram variáveis isoladas e relações lineares, mostra-se importante considerarmos a multiplicidade de variáveis individuais, familiares e contextuais intervenientes nesta complexa interação, de modo que seja

possível perceber de que forma as famílias se vão equilibrando e criativamente organizando.

Reflexão de possíveis implicações – caminhos no futuro

"A mudança é a lei da vida. E aqueles que olham apenas para o passado e para o presente irão certamente perder o futuro."

(John F. Kennedy, 1957)

Consideramos que, globalmente, atingimos o principal objetivo deste trabalho, apesar de alguns resultados nos terem surpreendido (e.g., efeito não moderador das etapas do ciclo vida familiar, o que nos conduziu a uma reorganização de tarefas) e dos diferentes estudos apresentarem limitações, já anteriormente discutidas em cada um deles. Assim, passamos a destacar aqueles que nos parecem ser os principais contributos deste trabalho seguidos das limitações gerais e, finalmente, apresentamos possíveis implicações para futuras investigações e para intervenções práticas.

Contributos

Com este trabalho foi possível conhecer melhor quem são os utilizadores das TIC em Portugal e caracterizar os seus padrões de utilização, analisando a sua relação com aspetos da dinâmica familiar, em diferentes etapas do ciclo vital da família.

A sequência dos estudos representa um passo importante ao caracterizar a utilização individual das TIC, bem como a perceção sobre o impacto que estas têm nas vivências do quotidiano familiar, comprovando o que a literatura já tinha evidenciado: as TIC estão a introduzir mudanças sem precedentes na vida familiar (Artigo 1; Lanigan, 2009; Stafford & Hillyer, 2012). Em concreto, começamos por criar no contexto desta investigação um novo instrumento multidimensional de avaliação do problema em estudo (QUTIC), através do qual nos foi possível recolher dados relativos às TIC. Estes dados possibilitaram-nos obter medidas isoladas suscetíveis de operacionalizar a multidimensionalidade da variável TIC [tipo de TIC utilizada, número de TIC utilizada(s),

frequência, contexto e finalidade de utilização]. Assim, para além de passarmos a dispor de medidas de utilização das TIC comummente utilizadas na literatura (e.g., número de TIC, frequência de utilização), também caracterizámos a utilização que as famílias portuguesas delas fazem através de padrões (de utilização), e validámos duas medidas: uma escala de atitudes relativa à perceção do impacto das TIC no contexto familiar e uma escala que assinala situações problemáticas que surgem a nível familiar decorrentes da utilização das TIC. Estas medidas têm a vantagem de poderem, futuramente, ser utilizadas isolada ou conjuntamente, de acordo com os objetivos em causa.

É de realçar o caráter inovador da identificação destes padrões de utilização das TIC, que permite ultrapassar a perspetiva unidimensional com que as TIC são comummente sinalizadas (uso/não uso) ao integrarem variações individuais associadas à utilização (e.g., frequência, contexto) numa tipologia, contribuindo para uma rápida identificação do tipo de utilização individual das TIC e permitindo a partir deles explorar a sua natureza e possíveis consequências (Brandtzæg, 2010).

Percebemos que mais do que as famílias se organizarem diferencialmente face às exigências específicas que a utilização das TIC traz em cada etapa particular do seu ciclo de vida familiar, foi o padrão de utilização das TIC adotado que refletiu influências diferenciadoras das TIC sobre as dimensões da dinâmica familiar consideradas. Assim, terminamos com a proposta de um novo modelo sistémico compreensivo desta interação TIC-dinâmica familiar, onde os problemas vivenciados assumem inevitavelmente um papel perturbador na qualidade de vida e na gestão do funcionamento das famílias, ao passo que uma atitude positiva face às TIC e uma utilização destas parece favorecer a qualidade de vida das famílias portuguesas.

Limitações

Transversal a todos os estudos, podemos destacar como limitação o tamanho e o tipo de amostra. Ainda que o tamanho das subamostras consideradas nos diferentes estudos tenha sido adequado para a realização das análises estatísticas, este facto e adicionalmente o carácter não probabilístico destas, não lhes confere robustez e aleatoriedade suficiente para que os seus resultados possam ser generalizados. Nos Artigos 3, 4, 5 a discrepância na proporção de elementos de diferentes subgrupos

considerados (e.g., maioritariamente famílias com filhos adultos emergentes) também se revelou uma limitação, na medida que pôde influenciar os resultados e, consequentemente, a necessidade de acautelar as interpretações e possíveis generalizações. O processo de recolha de dados foi mais moroso do que o inicialmente previsto, tendo sido complementada a recolha online com a presencial em virtude da existência de múltiplas submissões por parte dos mesmos participantes (Krantz & Reips, 2017) e dos elevados níveis de *drop-out* na modalidade online (e.g., inquéritos incompletos; Reips, 2000), o que se refletiu mesmo assim em proporções discrepantes no número de elementos nos grupos considerados nas amostras de alguns estudos.

Outra limitação presente em todos os estudos foi o facto de a recolha de dados ser somente realizada por meio de questionários de autorresposta, o que pode comprometer a fiabilidade dos resultados, sobretudo ao nível da probabilidade do enviesamento de respostas decorrente da desejabilidade social (Anastasi & Urbina, 2000). Adicionalmente, sendo estes instrumentos passíveis de ser aplicados a maiores de 12 (todos eles) e 18 anos (QOL), inviabilizou que crianças com idade inferior a 12 anos participassem diretamente no estudo, o que, aliado ao fato de serem utilizadores ativos de TIC, se revela uma limitação.

O facto de, tanto quanto é do nosso conhecimento, não haver estudos prévios que incidissem especificamente na questão de investigação que nos propusemos estudar (ver Estudo 1) dificultou a comparação de resultados, sobretudo em relação a variáveis que este estudo fez emergir como relevantes na população geral (como os padrões de utilização das TIC ou a medida da perceção do impacto das TIC no contexto familiar [FTAIS]).

Investigação

Tendo em consideração a multiplicidade de fatores que influenciam o sistema contextual onde as interações TIC e a dinâmica familiar ocorrem, parece-nos relevante explorar que variáveis (e.g., NSE, número de elementos por agregado familiar, distância à família nuclear, existência de crises inesperadas na história familiar, período pós pandemia) contribuem para as diferentes utilizações que são feitas das TIC pelas famílias portuguesas, pois estas podem fornecer explicações adicionais sobre o impacto que estas utilizações têm ao nível da dinâmica familiar.

Relativamente às principais questões de investigação que nos propusemos estudar, parece-nos relevante complementar e aprofundar alguns dos estudos, sobretudo, no que toca à expansão do modelo final encontrado, na exploração de atuais padrões de utilização das TIC e de atitudes face a estas (FTAIS) na população portuguesa, após a vivência de dois confinamentos face à pandemia da COVID-19 e, consequentemente, se os impactos que estas têm na dinâmica familiar revelam atualmente novos resultados. Parece-nos pertinente considerar no modelo final outra(s) variável(eis) (e.g., número de vantagens da utilização das TIC) para além da perceção do impacto das TIC (FTAIS) e do número de problemas familiares decorrentes da utilização das TIC no papel de preditoras, de forma a equilibrar o tipo de influências em questão. Adicionalmente, explorar se o grupo de Não Utilizadores se mantém enquanto tal ou se, decorrente da pandemia da COVID-19, por exemplo, evoluiu para um outro padrão de Utilizadores (e.g., face ao estabelecimento de comunicações com familiares para colmatar a distância geográfica, utilização de serviços de cuidados de saúde online, compras online). No que toca à possibilidade de serem utilizados padrões de utilização das TIC em estudos futuros, estes poderão vir a representar uma mais-valia pelos motivos enunciados já anteriormente e poderem ser retiradas ou adicionadas variáveis na composição destes que se mostrem pertinentes face aos objetivos dos estudos em questão (tal como o fizemos no Estudo 4).

Outro aspeto suscetível de ser investigado é o tipo de ocorrências que decorrem em determinados contextos de utilização das TIC, especialmente, da sala de estar e do quarto. No primeiro, porque é onde parecem ocorrer a maioria das utilizações diárias das TIC e, sendo um espaço por excelência familiar, importa perceber se estas utilizações estão efetivamente aqui localizadas, se se revelam redutoras do tempo em família e da qualidade das interações familiares (Hampton & Wellman, 2003; Mullan & Chatzitheochari, 2019; Nie, 2001; Shojanoori & Sadidpour, 2021; Shumate & Fulk, 2004) ou se integradas em dinâmicas familiares comuns (e.g., jogos online entre elementos da família), potenciando qualidade relacional e comunicacional dos seus elementos. O quarto, emerge no nosso estudo como um dos contextos preferenciais de utilização das TIC e assume uma importância particular na medida em que o problema das "crianças isoladas nos quartos" surge como sendo um dos mais preocupantes em famílias com filhos adolescentes (Artigo 4; Bacigalupe, 2011; Cardoso et al., 2009; Mesch, 2006b;

Shojanoori & Sadidpour, 2021). Parece-nos também importante explorar o contexto "em mobilidade", uma vez que este é mais frequente na franja da população mais nova e com padrões de Utilização Avançada das TIC, onde a sinalização de problemas é mais acentuada.

Apesar deste projeto ter contribuído para explorar e descrever o cenário familiar face à utilização das TIC, mostra-se relevante dar-lhe continuidade com estudos de caráter qualitativo e longitudinal. Primeiro, para que se possa compreender de forma mais profunda esta interação (e.g., avaliar significados da utilização diária e semanal das TIC, o papel que assumem e a relevância dos seus impactos na vida familiar, para além do número e da identificação das problemáticas familiares decorrentes do seu uso, dado que foram estas situações que maior impacto demostraram ter na perceção de um pior funcionamento familiar) e considerar a totalidade dos elementos por agregado familiar (de forma a obter uma perspetiva familiar co-partilhada), ultrapassando assim as limitações por nós identificadas na utilização exclusiva de questionários com idade recomendada de aplicação e de estudos de caráter eminentemente quantitativo. Em segundo lugar, realizar estudos longitudinais que nos permitissem ao longo do tempo perceber o dinamismo destas utilizações, nomeadamente se há mitigação de problemas relacionados com as TIC ou manutenção de boas práticas aprendidas, que funcionem como facilitadores da gestão do funcionamento e dinâmicas familiares com o acumular de experiências vividas.

Prática clínica

No que toca à prática clínica sistémica, é importante perceber o papel que as TIC desempenham no surgimento e manutenção de problemáticas específicas (e.g., dependência de internet, infidelidade online). Nesse sentido, o QUTIC enquanto instrumento global e os questionários que o integram - caracterização da utilização das TIC, FTAIS e a lista de problemas decorrentes da utilização das TIC - revelaram-se ferramentas de aplicação rápida que podem ser utilizados em contexto clínico (separada ou conjuntamente) como complementos do processo de avaliação (individual, casal ou familiar). Estes possibilitam ao clínico ter uma ideia mais clara do que é considerado problemático ou adaptativo para cada subsistema familiar e planear a sua intervenção com este subsistema em função disso.

Com a presente investigação percebemos que os problemas familiares decorrentes da utilização das TIC ocupam um papel de destaque na perceção mais negativa da qualidade de vida e de um funcionamento familiar menos adaptativo, não sendo por isso de estranhar que uma grande parte da literatura se tenha dedicado a analisar o caráter mais negativo das suas utilizações (e.g., Díaz-López et al., 2020; Kiesler et al., 2000; Kırcaburun & Griffiths, 2019; Nie, 2001). No entanto, vivemos atualmente imersos numa sociedade tecnológica e acreditamos que este ciclo recursivo de interações entre as TIC e as famílias se prolongue com TIC cada vez mais sofisticadas e adaptadas aos seus utilizadores, e famílias progressivamente desafiadas na interação com estas. Assim sendo, e porque os resultados nos demonstram que padrões mais avançados de utilização das TIC realçam o impacto de uma atitude mais positiva face às TIC na perceção de uma melhor qualidade de vida, importa promover uma utilização destas em prol das potencialidades de que a sua utilização se reveste e de forma a minimizar os seus riscos de utilização (OCDE, 2019). Nesse sentido, podemos então sugerir a implementação de algumas estratégias face aos desafios que as TIC parecem colocar às famílias portuguesas, decorrente dos resultados obtidos em alguns dos estudos que compõem este trabalho.

Assim, em famílias com filhos pequenos, em virtude de o problema familiar mais sinalizado ser o "contacto e troca de informações com pessoas estranhas por parte de menores", esta situação pode ser ultrapassada com a colocação de *softwares* de monitorização e controlo parental. Em famílias com filhos adolescentes, dado que os problemas mais reportados foram "discussões sobre o tempo de utilização das TIC" e "crianças isoladas nos seus quartos a utilizar as TIC", podem ser implementadas medidas semelhantes através da instalação *softwares* de controlo temporal e optar pela recolocação de TIC em locais específicos da casa ou à limitação de contextos na utilização móvel, onde os pais possam monitorizar a utilização que os filhos fazem das TIC. Nas famílias com filhos adolescentes e adultos emergentes, a questão da "dependência da internet, dos videojogos e do telemóvel" revelou-se como uma das mais preocupantes, sendo muitas vezes colmatada com medidas restritivas por parte dos pais. Porém, convém alertar para o facto de estas serem estratégias numa lógica de primeira ordem (Hertlein & Blumer, 2014), uma vez que não há consciencialização nem se trabalha o problema (Delmonico et al., 2002). Paradoxalmente, a implementação

desta última estratégia revelou-se pouco eficaz uma vez que os próprios jovens desenvolveram em resposta um antídoto nas interações entre pares: POS (*parents over shoulder*), sinalizando que naquele momento os pais estavam a espreitar por cima do seu ombro (Sampaio, 2018). Nesta etapa do ciclo vital familiar, entre a dialética de proteção e autonomia familiar, é importante que os pais percebam que são eles que detêm o poder e que este não lhes foi resgatado pelas TIC. E que face às crescentes exigências da privacidade dos filhos, por um lado, e à necessidade de controlo parental, por outro, emergiram novas dificuldades de relacionamento entre pais e filhos que só podem ser resolvidas através do respeito mútuo, da partilha de pontos de vista e da discussão das regras de utilização das TIC (Sampaio, 2018). Neste sentido, as novas formas de comunicação (e.g., grupos em redes sociais, jogos em rede) podem assumir-se como veículos facilitadores de aproximação entre pais e filhos (Child & Westermann, 2013; Sampaio, 2018), e também entre avós e netos (Nouwen & Duflos, 2021), contribuindo para a diminuição do fosso digital (*digital gap*) entre gerações (Ivan & Hebblethwaite, 2016; Khoo & Yang, 2020; Kooiman & Sheehan, 2014).

Voltando às famílias com filhos pequenos, é importante que os próprios pais sirvam de modelo de comportamentos adequados face às TIC e que acompanhem os filhos na exploração de uma utilização responsável e autorregulada (Brito et al., 2017; Plowman et al., 2010), aprendendo com a experiência boas práticas de utilização das TIC (que facilitem atitudes positivas relativamente a estas) e evitando a probabilidade de ocorrência de problemas futuros.

Em relação à questão das dependências online, os números são preocupantes: em 2019, 15 a 20% dos jovens estavam dependentes de ajuda profissional face a situações de adição tecnológica (Patrão & Fernandes, 2019), tendo-se agravado a situação com a pandemia da COVID-19 juntamente com outros problemas como a solidão, alteração de peso e dos padrões de sono (Fundação Francisco Manuel dos Santos [FFMS], 2021). Uma vez que os estilos de educação parental mais permissivos parecem estar associados a maior probabilidade de ocorrência de situações de dependência online entre jovens (Gunuc & Dogan, 2013) e a proibição se mostra na maioria das vezes ineficaz (Patrão et al., 2016; Patrão & Fernandes, 2019), há que tentar, por um lado, estabelecer um equilíbrio na relação com as TIC (e.g., reduzir o *smarthphone* ao essencial, desativar notificações e *cookies* suscetíveis de potenciar padrões de conetividade perpétua;

dosear o tempo de utilização e supervisionar atividades dos filhos; alterar atividades *online* para *offline*; Orlowski, 2020; Patrão et al., 2016a 2016b; Patrão & Fernandes, 2019), dado o caráter omnipresente destas na vida quotidiana, e, por outro, avaliar os benefícios de um estilo parental mais autoritativo (Brito et al., 2017). Conjuntamente com os elementos do subsistema familiar, deve-se procurar identificar o que suscitou a ocorrência de situações consideradas problemáticas e o que as mantém, para que se possa agir não só no sentido da sua resolução, mas também da restruturação familiar (e.g., criar novas narrativas sobre a interação TIC-família, pais assumirem um papel ativo e detentor de poder sobre a utilização das TIC, criar e manter canais de comunicação abertos entre subsistema parental e filial) de forma a prevenir futuras ocorrências. Dito por outras palavras, para além das tentativas em manter um estado de equilíbrio familiar tantas vezes desejável e necessário, há outras vezes em que é preciso agir numa lógica de promoção de mudanças no funcionamento da família que se mostrem mais adequadas às exigências desta e dos contextos onde está inserida. Porque perceber a natureza destes comportamentos poderá ajudar a desenvolver novas e mais adequadas estratégias para lhes fazer face, com resultados diferentes. Isto, não descurando da multiplicidade de riscos associados à utilização das TIC, mas procurando integrá-las de forma consciente e responsável na vida quotidiana, em prol dos seus benefícios de forma a promover o crescimento e a qualidade de vida familiar.

Novas e complexas respostas terão de ser recriadas face aos múltiplos desafios que esta Quarta Revolução Industrial ainda nos colocará. Para tal, deixamos às famílias uma palavra de reconhecimento pelo papel eminente que têm enquanto agentes de mudança no contexto dessa revolução, incentivando-as a recriarem-se continuamente no seu processo de crescimento. A nível macrossistémico, estas mudanças deverão ser reforçadas a montante por políticas nacionais de inclusão na cultura digital que promovam não só uma acessibilidade comunitária às TIC, como uma agenda de formação de competências digitais e a difusão de estratégias preventivas e interventivas que capacitem os indivíduos a serem utilizadores efetivos, seguros e responsáveis das TIC.

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Anexo

Anexo A – Protocolo de investigação

Caro/a Participante:

Uma equipa de investigação da Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra (FPCEUC) e da Faculdade de Psicologia da Universidade de Lisboa (FPUL) coordenada pela Professora Doutora Ana Paula Relvas encontra-se a desenvolver um estudo sobre **a vivência das famílias portuguesas na atualidade**. Mais especificamente, pretende-se recolher informação acerca da integração das tecnologias de informação e comunicação (TIC) na vida familiar. Convidamo-lo, deste modo, a colaborar neste estudo, que consistirá no preenchimento de um conjunto de questionários, com uma duração aproximada de 20 minutos. Para participar terá de ter **mais de 12 anos** (desde que autorizado pelos pais ou responsáveis enquanto menor).

A sua participação é **voluntária** e as respostas às perguntas dos questionários são **anónimas** e **confidenciais**, sendo tratadas em termos globais apenas para efeitos de investigação. Mais informamos que não haverá qualquer consequência para quem se recusar a participar. Se surgirem dúvidas por favor contacte a equipa de investigação através do email jc.fpceuc@gmail.com

Se aceitar participar neste projeto de investigação, por favor coloque um X no quadro abaixo:

☐ Tomei conhecimento dos objetivos deste estudo e aceito participar voluntariamente no mesmo

Instruções gerais de preenchimento:

Antes de responder, leia atentamente as questões e as instruções específicas para cada questionário. A menos que seja dada indicação contrária, assinale as suas respostas com uma cruz (x). Quando não tiver a certeza acerca de um valor ou resposta, responda com dados aproximados. Se quiser alterar uma resposta já anotada, risque-a e assinale-a de novo. Não tem tempo limite, mas tente responder o mais espontaneamente que lhe for possível. Responda com sinceridade; não há respostas boas ou más desde que elas exprimam o que pensa, sente ou faz em cada caso.

Para que nos seja possível coordenar as suas respostas com as dos seus familiares, o investigador responsável atribuirá um código a este questionário

Código: 20__/_____/_____
(Ano/Código investigador/Nº família/Elemento)

A sua colaboração é da máxima importância para o prosseguimento deste estudo, pelo que, desde já agradecemos a sua disponibilidade!

A equipa de investigação:
Ana Paula Relvas
Joana Carvalho
Rita Francisco

Após a conclusão deste estudo, os principais resultados e informação adicional sobre este projeto serão divulgados na página: http://www.ictfamilydynamics.net/

Questionário Sociodemográfico e de Dados Complementares

1. Dados Pessoais

Sexo

□ Feminino □ Masculino

Idade ___ anos

País onde reside

□ Portugal Em que distrito? _____

□ Outro Qual? _____

Zona de Residência

□ Urbana □ Moderadamente urbana □ Rural

Estado Civil

□ Solteiro(a) □ Recasado(a)/nova união de facto

□ União de facto □ Divorciado(a)

□ Casado(a) □ Viúvo(a)

Com que etnia se identifica?

□ Branca/Caucasiana □ Asiática

□ Africana □ Cigana

□ Caucasiana-africana □ Outra Qual? _____

Nível de escolaridade (concluído):

□ 4º ano □ Licenciatura

□ 6º ano □ Mestrado

□ 9º ano □ Doutoramento

□ 12º ano □ Outro: _____

Situação laboral atual

□ Estudante □ Empregado a tempo parcial

□ Desempregado □ Empregado a tempo integral

□ Reformado

Profissão _____

2. Dados Familiares

2.1 Indique os membros que pertencem à sua família nuclear (membros do agregado familiar que participam em atividades comuns, por ex. refeições, férias, despesas). Caso viva sozinho(a) assinale apenas a quadrícula, não precisa de colocar a sua idade.

□ Sozinho(a)

Grau de parentesco*	Idade	Grau de parentesco*	Idade
	___ anos		___ anos
	___ anos		___ anos
	___ anos		___ anos
	___ anos		___ anos

** Pai; mãe; padrasto; madrasta; marido; esposa; filho(a); avó; avô; tio(a); primo(a); etc.*

2.2 Indique o número de filhos que já saíram de casa e a respetiva idade (caso se aplique):

_____

2.3 Caso atualmente não viva com a sua família nuclear (ex. estudante; emigrante; institucionalizado), **refira com quem vive:**

_____

Assinale a distância geográfica (aproximada) à sua família nuclear

(Por exemplo, se estiver emigrado num país africano e o seu cônjuge residir em Portugal deverá selecionar a resposta 'mais de 500km')

□ Nenhuma, vivemos na mesma casa □ Entre 10-100km □ Mais de 500km

□ Até 10km □ Entre 100-500km

Assinale a distância geográfica (aproximada) a que se encontra da sua família alargada (membros da família que não fazem parte da família nuclear, por ex. avós, netos, primos, filhos autónomos), **caso existam**:

Elementos ascendentes (ex. pais e avós)	**Elementos colaterais** (ex. irmãos, primos)	**Elementos descendentes** (ex. netos, filhos autónomos)
□ Nenhuma, vivemos na mesma localidade □ Até 10km □ Entre 10-100km □ Entre 100-500km □ Mais de 500km	□ Nenhuma, vivemos na mesma localidade □ Até 10km □ Entre 10-100km □ Entre 100-500km □ Mais de 500km	□ Nenhuma, vivemos na mesma localidade □ Até 10km □ Entre 10-100km □ Entre 100-500km □ Mais de 500km

2.4 Qual é, aproximadamente, o rendimento mensal líquido da sua família (após o desconto da segurança social e outros impostos)**?**	_____euros/mês

Questionário de Utilização das Tecnologias de Informação e da Comunicação (QUTIC; Carvalho, Francisco, Bacigalupe, Roberto, & Relvas, 2022)

1. Utiliza alguma das seguintes TIC (Tecnologias de Informação e Comunicação)?

- ☐ Telefone fixo
- ☐ Telemóvel
- ☐ Smartphone (ex. Android; iPhone)
- ☐ Computador de secretária
- ☐ Computador portátil
- ☐ Tablet (ex. iPad)
- ☐ eBooks
- ☐ Videojogos
- ☐ Email
- ☐ Redes sociais (ex. Facebook)
- ☐ Videoconferência (ex. Skype)
- ☐ Página *web* ou blog pessoal
- ☐ Internet (ex. navegar noutros *sites*)

Se não marcou com uma cruz nenhuma das TIC assinaladas, avance diretamente para a **questão 5**

2. Se marcou uma ou mais TIC anteriormente, com que frequência a(s) utiliza?
Para cada uma das TIC que selecionou na questão 1, indique a frequência com que a(s) utiliza

	1 vez por semana	1-2 vezes por semana	3-4 vezes por semana	5-6 vezes por semana	Até 30 minutos por dia	30-60m por dia	1-3h por dia	3-6h por dia	6-9h por dia	9-12h por dia	Mais de 12h por dia
Telefone fixo											
Telemóvel											
Smartphone (ex. Android; iPhone)											
Computador de secretária											
Computador portátil											
Tablet (ex. iPad)											
eBooks											
Videojogos											
Email											
Redes sociais (ex. Facebook)											
Videoconferência (ex. Skype)											
Página web ou blog pessoal											
Internet (ex. navegar noutros *sites*)											

3. Qual a finalidade principal com que utiliza esta(s) TIC?
Para cada uma das TIC que selecionou na questão 1, indique a principal finalidade da sua utilização.

	Profissional/ Académica	Social/ Entretenimento	Informação	Comunicação	Compras	Terapêutica/ Saúde
Telefone fixo						
Telemóvel						
Smartphone (ex. Android; iPhone)						
Computador de secretária						
Computador portátil						
Tablet (ex. iPad)						
eBooks						

Videojogos						
Email						
Redes sociais (ex. Facebook)						
Videoconferência (ex. Skype)						
Página web ou blog pessoal						
Internet (ex. navegar noutros *sites*)						

4. Qual o contexto em que utiliza maioritariamente esta(s) TIC?

Para cada uma das TIC que selecionou na questão 1, indique o principal contexto de utilização.

	Trabalho/Escola	Casa (sala)	Casa (quarto)	Espaços de Internet	Em mobilidade
Telefone fixo					
Telemóvel					
Smartphone (ex. Android; iPhone)					
Computador de secretária					
Computador portátil					
Tablet (ex. iPad)					
eBooks					
Videojogos					
Email					
Redes sociais (ex. Facebook)					
Videoconferência (ex. Skype)					
Página web ou blog pessoal					
Internet (ex. navegar noutros *sites*)					

5. Em que medida concorda com as seguintes afirmações relativamente às tecnologias de informação e de comunicação (TIC)?

	Concordo Totalmente	Concordo	Não concordo nem discordo	Discordo	Discordo totalmente
As TIC reduzem o tempo passado em família					
As TIC promovem uma boa comunicação na família					
As TIC interferem com as regras familiares					
As TIC melhoram a coesão familiar					
As TIC colocam em risco a privacidade familiar					
As TIC facilitam as relações entre gerações					
As TIC interferem na intimidade familiar					
As TIC acompanham as mudanças da família ao longo do tempo					
As TIC tornam a família mais vulnerável					

As TIC ajudam as famílias a ultrapassar dificuldades					

6. Dos seguintes temas relacionados com as TIC, assinale aqueles com que já se confrontou na sua vida familiar		
	Sim	Não
Discussões sobre o tempo de utilização das TIC		
Acesso a conteúdos desadequados à idade (ex., violentos, pornografia) pelos menores		
Contato e troca de informações com pessoas estranhas por parte dos menores		
Crianças isoladas nos seus quartos a utilizar as TIC		
Utilização das TIC para contatar a família distante		
Falta de limites entre a vida familiar e profissional/académica-escolar		
Infidelidade online		
Utilização das TIC para enfrentar situações difíceis de resolver cara a cara		
Dependência da internet, dos videojogos ou do telemóvel		
Gestão de atividades quotidianas (ex., coordenar horários, combinar transportes, fazer pagamentos)		
Existência de problemas de saúde física por utilização das TIC (ex., lesões, problemas oculares)		

Qualidade de vida (QOL; Olson, 1982; Cunha & Relvas, 2015)

Instruções: Leia a lista de "possibilidades de resposta" uma de cada vez. Em seguida, decida acerca da forma como se sente em relação a cada uma das questões. De acordo com o seu grau de satisfação, assinale com uma cruz (X) a classificação mais adequada (1, 2, 3, 4, ou 5) à frente do tópico em questão.

Qual o seu nível de satisfação com…	1. I Insatisfeito	2. Pouco Insatisfeito	3. Geralmente Satisfeito	4. Muito Satisfeito	5. Extremamente Satisfeito
1. A sua família					
2. O seu casamento					
3. Os seus amigos					
4. A relação com os seus familiares (tios, tias, avós, etc.)					
5. A sua própria saúde					
6. Espaço para as suas próprias necessidades					
7. Quantidade de tempo livre					
8. Tempo para si					
9. Tempo para a família					
10. Tempo para a lida da casa					
11. A qualidade dos filmes					
12. A qualidade dos jornais e revistas					
13. As escolas na sua comunidade					
14. Condições oferecidas pela sua comunidade para fazer as suas compras quotidianas					
15. A segurança na sua comunidade					
16. O seu nível de rendimentos					
17. Dinheiro para as necessidades familiares					
18. A sua capacidade para lidar com as emergências financeiras					
19. Nível de poupança					
20. Dinheiro para futuras necessidades da família					

SCORE-15 (Stratton, Bland, Janes, & Lask, 2010; Vilaça, Silva, & Relvas, 2014)

Instruções: Solicitamos que nos descreva a forma como vê a sua família neste momento. Quando dizemos "a sua família" referimo-nos às pessoas que vivem em sua casa.

Como diria que cada afirmação descreve a sua família?	Descreve-nos: Muito bem	Descreve-nos: Bem	Descreve-nos: Em parte	Descreve-nos: Mal	Descreve-nos: Muito mal
1. Na minha família, falamos uns com os outros sobre coisas que têm interesse para nós					
2. Na minha família muitas vezes não se diz a verdade uns aos outros					
3. Todos nós somos ouvidos na nossa família					
4. Sinto que é arriscado discordar na nossa família					
5. Sentimos que é difícil enfrentar os problemas do dia-a-dia					
6. Confiamos uns nos outros					
7. Sentimo-nos muito infelizes na nossa família					
8. Na minha família, quando as pessoas se zangam, ignoram-se intencionalmente					
9. Na minha família parece que surgem crises umas atrás da outras					
10. Quando um de nós está aborrecido/perturbado é apoiado pela família					
11. As coisas parecem correr sempre mal para a minha família					
12. As pessoas da minha família são desagradáveis umas com as outras					
13. Na minha família as pessoas interferem demasiado na vida uma das outras					
14. Na minha família culpamo-nos uns aos outros quando as coisas correm mal					
15. Somos bons a encontrar novas formas de lidar com as dificuldades					

Questionário dos Rituais familiares (FRQ; Fiese & Kline, 1993; Crespo, 2007; Lind, 2012)

Instruções: Nas páginas seguintes encontram-se descrições de rotinas e tradições familiares. Em algumas famílias rotinas e tradições são muito importantes, mas noutras famílias, existe uma atitude de maior indiferença em relação às rotinas e tradições. No topo de cada secção irá encontrar um cabeçalho que corresponde a um contexto familiar: **hora de jantar** e **comemorações anuais**. Leia as duas afirmações e escolha aquela que é mais parecida com a sua família. Depois de ter escolhido a afirmação mais parecida com a sua família, decida se esta afirmação é Totalmente Verdadeira ou Mais ou Menos Verdadeira. Responda às questões pensando na sua família atual.

HORA DE JANTAR

Pense num jantar normal na sua família:

1. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.

□	**Algumas famílias jantam juntas regularmente.**	**Outras famílias raramente jantam juntas.**	□

b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:

□ **Totalmente verdade**	**Mais ou menos verdade** □

2. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.

□	**Em algumas famílias é esperado que todos estejam em casa para o jantar.**	**Em outras famílias nunca se sabe quem vai estar em casa para o jantar.**	□

b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:

□ **Totalmente verdade**	**Mais ou menos verdade** □

3. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.

□	**Em algumas famílias as pessoas fazem questão de jantar juntas.**	**Em outras famílias não é assim tão importante as pessoas jantarem juntas.**	□

b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:

□ **Totalmente verdade**	**Mais ou menos verdade** □

4**.** a) Assinale com uma cruz a afirmação que mais se parece com a sua família

□	**Em algumas famílias a hora de jantar é apenas uma altura para se comer.**	**Em outras famílias a hora do jantar é mais do que uma simples refeição; tem um significado especial.**	□

b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:

□ **Totalmente verdade**	**Mais ou menos verdade** □

5. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.

□	**Em algumas famílias há pouco planeamento em relação ao jantar.**	**Em outras famílias o jantar é planeado com antecedência.**	□

b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:

□ **Totalmente verdade**	**Mais ou menos verdade** □

COMEMORAÇÕES ANUAIS

Pense em ocasiões que a sua família comemora todos os anos. Alguns exemplos são a celebração do dia de anos, dia do casamento e outros aniversários.

1. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.

□	**Algumas famílias têm várias comemorações anuais regulares.**	**Para outras famílias existem poucas comemorações anuais ou estas são raramente celebradas.**	□

b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:

□ **Totalmente verdade**	**Mais ou menos verdade** □

2. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.			
□	**Em algumas famílias é esperado que todos estejam presentes na comemoração.**	**Em outras famílias as comemorações anuais podem ser uma altura em que nem todos estejam presentes.**	□
b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:			
	□ **Totalmente verdade**	**Mais ou menos verdade** □	

3. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.			
□	**Em algumas famílias há um sentimento especial nos dias de anos e em outras comemorações.**	**Em outras famílias as comemorações são mais informais; as pessoas não estão envolvidas emocionalmente.**	□
b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:			
	□ **Totalmente verdade**	**Mais ou menos verdade** □	

4. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.			
□	**Em algumas famílias os dias de anos e aniversários são marcos importantes que são celebrados de forma especial.**	**Em outras famílias não se dá grande importância aos dias de anos e aniversários; os membros da família até podem comemorar, mas nada é particularmente especial.**	□
b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:			
	□ **Totalmente verdade**	**Mais ou menos verdade** □	

5. a) Assinale com uma cruz a afirmação que mais se parece com a sua família.			
□	**Em algumas famílias estas comemorações são muito discutidas e planeadas.**	**Em outras famílias não há muito planeamento e discussão à volta destas comemorações.**	□
b) Em relação à afirmação que escolheu considera que, para a sua família, ela é:			
	□ **Totalmente verdade**	**Mais ou menos verdade** □	