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Lorrayne Stephane Soares

**RELACIONAMENTOS ROMÂNTICOS FRENTE A ADVERSIDADE: Estudos sobre
os Transtornos do Neurodesenvolvimento e a COVID-19**

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Lorrayne Stephane Soares

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Orientadora: Profa. Dra. Débora Marques de Miranda

Co-orientador: Prof. Dr. Jonas Jardim de Paula

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RELACIONAMENTOS ROMÂNTICOS FRENTE À ADVERSIDADE: ESTUDOS SOBRE OS TRANSTORNOS DO NEURODESENVOLVIMENTO E A COVID-19

LORRAYNE STEPHANE SOARES

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Débora Marques de Miranda - Orientadora
UFMG

Jonas Jardim de Paula - Coorientador
UFMG

Antônio Marcos Alvim Soares Júnior
UFMG

Alessandra de Fátima Almeida Assumpção
PUC Minas

Isabela Maria Magalhães Lima
UFSJ

André Luiz de Carvalho Braule Pinto
SES-AM

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À minha mãe, quem mais me ensinou sobre todos
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“Splendid solitude is for planets, not people”

(Jonhson, 2013)

RESUMO

O fenômeno dos relacionamentos sociais compõe uma parte central da existência humana, e há muito tempo os relacionamentos românticos já vêm sendo apontados como importante fator protetivo no que diz respeito à saúde mental. Alguns transtornos mentais, porém, parecem apresentar um padrão problemático de relacionamentos, como parece ser o caso de alguns transtornos do Neurodesenvolvimento, como o Transtorno de Déficit de Atenção/Hiperatividade (TDAH) e o Transtorno do Espectro Autista (TEA). Dessa forma, neste trabalho nos propusemos a observar a relação entre os relacionamentos românticos, estresse e a saúde mental, bem como particularidades associadas a esses transtornos, através de 3 estudos. Os resultados do Estudo 1 apontam uma variação no estado civil a depender dos sintomas dos Transtornos do Neurodesenvolvimento, de forma que a taxa de indivíduos que nunca havia se casado foi maior entre aqueles com traços de TEA, enquanto no grupo de indivíduos com sintomas mais elevados de TDAH encontramos uma taxa de divórcio mais elevada. Além disso, aqueles com sintomas mais elevados de TDAH, bem como sintomas elevados dos dois transtornos apresentaram maior intensidade de amor apaixonado. O estudo 2, realizado durante os primeiros meses da pandemia de COVID-19, apontou para um efeito positivo dos relacionamentos no humor dos participantes, e para um efeito moderador da responsividade na relação entre stress e saúde mental entre indivíduos em um relacionamento, mas que não moravam juntos. Um ano depois, esses participantes foram reavaliados para acompanhamento, compondo o terceiro estudo. Os resultados longitudinais apontam para uma piora dos níveis de estresse relacionados a mudanças provocadas pela pandemia. Apesar disso, os participantes reportam maior satisfação com o relacionamento, bem como na responsividade percebida. Além disso, observamos uma melhora no humor dos participantes, com um efeito do estado civil, de forma que indivíduos casados ou que moravam juntos apresentaram melhora do humor mais pronunciada, quando comparados a indivíduos solteiros. Tomados em conjunto, os resultados dos nossos estudos reforçam a relevância dos diferentes tipos de relacionamentos românticos no bem-estar geral e saúde mental dos adultos, e o efeito protetivo do casamento, além da importância de melhor investigar os mecanismos que poderiam contribuir de forma negativa para o perfil de relacionamentos amorosos observado nos transtornos do neurodesenvolvimento.

Palavras Chave: Relacionamentos românticos, TDAH, TEA, Saúde mental

ABSTRACT

The phenomenon of social relationships is a central part of human existence, and close relationships have long been pointed out as an important protective factor with regard to mental health. Some mental disorders, however, seem to present a problematic pattern of relationships, as seems to be the case with some Neurodevelopmental Disorders, such as Attention Deficit/Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD). Thus, in this work, we proposed to observe the relationship between romantic relationships, stress and mental health, as well as the particularities associated with these disorders, through 3 studies. Study 1 points to a variation in marital status depending on the symptoms of Neurodevelopmental Disorders, so that the rate of individuals who had never been married was higher among those with ASD traits, while in the group of individuals with higher ADHD symptoms we found a higher divorce rate. In addition, those with higher ADHD symptoms and higher symptoms of both disorders had greater intensity of passionate love. Study 2, conducted during the earlier stages of the COVID-19 pandemic, pointed to a positive effect of relationships on the mood of participants, and to a moderating effect of responsiveness in the relationship between stress and mental health among individuals in a relationship but who did not cohabit. One year later, these participants were re-evaluated for a follow-up, composing the third study. The longitudinal analyses point to an increase in social and work-related stressors caused by the pandemic, but also a greater relationship satisfaction and partner perceived responsiveness. In addition, we observed an improvement in the participants' mood, with an effect of marital status, with married/cohabiting individuals showing a more pronounced improvement in mood, when compared to single individuals. Taken together, the results of our studies reinforce the relevance of various types of affective relationships in the general well-being and mental health of adults and the importance of thoroughly investigating which mechanisms would be contributing negatively to the relationship between neurodevelopmental disorders and the development and maintenance of loving relationships.

Keywords: Romantic relationships, ADHD, ASD, Autism, Mental health,

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LISTA DE ABREVIATURAS E SIGLAS

| | |
|-------------|---|
| ADHD | Attention Deficit/Hyperactive Disorder |
| AQ | Autism-Spectrum Quotient |
| ASD | Autism Spectrum Disorder |
| ASRS | Adult Self-Report Scale |
| <i>CCEB</i> | Brazilian Economic Classification Criteria |
| fMRI | Functional Magnetic Resonance Imaging |
| OMS | Organização Mundial da Saúde |
| PLS | Passionate Love Scale |
| PPRS | Perceived Partner Responsiveness Scale |
| RAS | Relationship Assessment Scale |
| SES | Socioeconomic status |
| TDAH | Transtorno de Déficit de Atenção/Hiperatividade |
| TEA | Transtorno do Espectro Autista |

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1. INTRODUÇÃO

O fenômeno dos relacionamentos sociais compõe uma parte central da existência humana. *"It is in the shelter of each other that the people live"* ("É no abrigo uns dos outros que as pessoas vivem", em tradução livre) já dizia um antigo provérbio irlandês, demonstrando que não é novidade a ideia de que a nossa sobrevivência depende da nossa relação com o outro.

Desde o nascimento, nossos pensamentos, emoções e comportamentos são influenciados pelo contexto social e pelos comportamentos daqueles ao nosso redor (Reis, 2012). Talvez a maior prova da nossa dependência esteja no fato de nascermos indefesos e incapazes de sobreviver por nós mesmos. À medida que envelhecemos, essas relações se modificam e a nossa dependência deixa de ser tão óbvia e, o que antes era uma necessidade, torna-se, muitas vezes, um sinal de fraqueza. Entretanto, é essa habilidade de nos relacionar e formar conexões com o outro que nos garante a sobrevivência como espécie, e é, talvez, o nosso maior trunfo (Johnson, 2013).

1.1. Entendendo os relacionamentos românticos

Entre as principais fontes de apoio e suporte na vida adulta, podemos destacar os relacionamentos românticos (Lee & Goldstein, 2015), que, de acordo com a teoria do apego (Bowlby, 1973), serviriam como base segura e fonte de segurança, conforto e proteção (Hazan & Shaver, 1994). Durante muito tempo, os relacionamentos amorosos foram um tema deixado de lado pelos pesquisadores. Talvez por ser tratado como uma emoção inexplicável, ou pelo caráter aparentemente pouco racional, era considerado tarefa de poetas, um tópico incompatível com o caráter objetivo das ciências.

Ao final do séc. XX, porém, esforços por parte de teóricos da área da Psicologia impulsionam novas discussões e teorias acerca da natureza e dinâmica dos relacionamentos românticos. Nesse sentido, uma das teorias mais conhecidas e populares, a Teoria Triangular de Sternberg (1986), sugere que o amor seria composto por 3 componentes: paixão, associada à atração física e sexual e aos impulsos iniciais de um relacionamento; intimidade, que inclui os sentimentos de proximidade, conexão e vínculo; e compromisso, que, a curto prazo, envolve a decisão de um amar o outro, e, em longo prazo, o compromisso de manter esse amor. De acordo com a teoria, através das combinações e intensidade desses componentes seria possível explicar a dinâmica e o tipo dos relacionamentos amorosos.

Já a partir de uma perspectiva evolutiva, os relacionamentos românticos seriam parte de uma estratégia reprodutiva que garantiria aos seres humanos melhores chances de sobrevivência (Buss, 1988), já que a construção de uma parceria cooperativa poderia, por exemplo, ajudar os casais na aquisição de recursos que contribuiriam para a subsistência da prole. Nesse contexto, o amor romântico ganha um papel de destaque, especialmente para a espécie humana, uma vez que favoreceria a estabilidade dessa parceria, ampliando as chances de sobrevivência da prole.

Entretanto, o amor nem sempre foi tido como elemento fundamental para formação de um relacionamento, e foi só ao final do século XX que o amor perde o status de desestabilizador da organização familiar e entra para a lista de aspectos essenciais não só para o início, mas também para manutenção dos relacionamentos e satisfação conjugal (Berscheid, 2010; Graham, 2011).

1.2. Relacionamentos românticos e saúde mental

Durante muito tempo o casamento foi considerado a base de sustentação das sociedades, e a conquista da estabilidade através da constituição de uma família, o propósito mais importante. Hoje em dia, com o aumento na complexidade dos relacionamentos, o casamento é mais uma escolha do que uma necessidade, e está longe de ser um objetivo de vida universal (Lehman et al. 2015). Apesar disso, em geral, as pessoas ainda demonstram desejo de se envolverem romanticamente, e de terem uma parceria (Keith, 2003; Adamczyk, 2016). Mais do que isso, o suporte vindo do parceiro romântico parece ser um dos mais importantes na vida de jovens adultos, e a porcentagem de pessoas que reportam ter apenas o parceiro romântico como confidente parece estar aumentando ao longo das últimas décadas (McPherson, Smith-Lovin e Brashears, 2004; Lee e Goldstein, 2016).

Ao longo das últimas décadas, um número crescente de pesquisas vem apontando o casamento como importante fator protetivo no que diz respeito à saúde mental (para revisão, ver Gómez-López, Viejo & Ortega-Ruiz, 2019), enquanto o fracasso em estabelecer e manter um relacionamento íntimo durante a idade adulta, por outro lado, parece ter implicações mais negativas nesse sentido (Kiecolt-Glaser e Newton 2001). O estado civil aparece como um importante preditor de problemas com bebidas e alcoolismo (Hradilova, 2005), enquanto níveis mais altos de depressão, ansiedade e transtornos de humor foram observados entre indivíduos solteiros (Braithwaite et al. 2010). Além disso, o envolvimento em relacionamentos românticos, por si só, foi associado com melhor bem-estar (Umberson and Williams, 1999), e resultados têm sugerido associação entre outros tipos de relacionamento romântico (não-conjugais) e bem-estar e saúde mental. (Adamczyk e Segrin 2015; Braithwaite et al. 2010). Nesse contexto, Dush e Amato (2005) descobriram que indivíduos apresentaram diferenças nos níveis de bem-estar subjetivo, com indivíduos casados relatando os níveis mais altos, seguidos por indivíduos que moram juntos, indivíduos namorando apenas uma pessoa, indivíduos que namoram várias pessoas e, por último, indivíduos que não namoram, reforçando a importância de outros tipos de relacionamentos românticos para o bem-estar emocional na idade adulta.

Os relacionamentos românticos também parecem exercer uma função importante em situações estressantes. Ao que parece, a qualidade dos relacionamentos poderia amplificar ou minimizar os efeitos do stress (Conradi et al. 2021), e está associado à melhor resiliência e a desfechos mais positivos no que diz respeito à recuperação e funcionamento relacionados a sintomas e problemas de saúde (Henry et al, 2019; Sippel et al, 2015; Wang et al, 2018; Siedlecki et al, 2014). De fato, pesquisas recentes realizadas durante a pandemia de COVID-19 vêm demonstrando que indivíduos casados parecem reportar níveis

de estresse mais baixos, quando comparados àqueles que não estão em nenhum tipo de relacionamento (Kowal et al., 2020), e que estar casado ou morando junto parece predizer melhores desfechos relacionados à saúde mental durante o *lockdown* (Gualano et al., 2020; Stanton et al., 2020).

Uma das explicações mais aceitas acerca do papel protetivo dos relacionamentos em contextos de stress diz respeito à disponibilidade de apoio social. De acordo com essa ideia, os relacionamentos beneficiariam as pessoas ao fornecer apoio emocional, companheirismo e um sentimento de pertencimento (Dush & Amato, 2005), já que a falta de conexões sociais parece estar associada a problemas psicológicos, pior adaptação, e níveis mais baixos de bem-estar (Baumeister e Leary, 1995). De fato, o suporte provido pelo parceiro aparece como um fator protetivo para depressão e bem-estar em geral (Thoits, 2011; Gariépy, 2016; Proulx et al. 2007), e a existência de laços e suporte sociais foram positivamente relacionados à saúde mental e física e à longevidade (Thoits, 2011). Nesse sentido, Soulsby e Bennet (2015) investigaram o papel do apoio social na relação entre o casamento e bem-estar e descobriram que o suporte social agiria como mediador nessa associação, sendo o responsável pelas diferenças no bem-estar psicológico entre os grupos, de forma que níveis mais baixos de suporte social percebido em viúvos, divorciados e naqueles que nunca se casaram, resultam em pior saúde mental, quando comparados aos casados.

No entanto, a qualidade do relacionamento também parece contar muito nesse contexto, uma vez que foi associada a uma série de desfechos relacionados à saúde mental (Whisman & Baucom, 2012). Um estudo longitudinal que acompanhou casais por 10 anos encontrou que desentendimentos e críticas no casamento foram preditores de sintomas de depressão 10 anos depois (Peterson-Post et al., 2014), e problemas conjugais também predisseram o início de psicopatologias, incluindo problemas de humor, ansiedade e uso de substâncias (Whisman & Baucom, 2012). Alguns resultados sugerem, inclusive, que desentendimentos conjugais podem estar associados a disfunções no papel social em relacionamentos com parentes e amigos, e também no trabalho, além de maior angústia geral, problemas de humor, ansiedade e transtornos por uso de substâncias (Whisman & Uebelacker, 2006). Sendo assim, entender o papel dos relacionamentos, e de que forma eles poderiam impactar e serem impactados em situações de estresse agudo, como é o caso da pandemia de COVID-19, é essencial para pensar em estratégias capazes de minimizar os prejuízos associados ao contexto.

1.3. Transtornos do Neurodesenvolvimento: TDAH e TEA

Alguns transtornos mentais parecem apresentar um padrão problemático de relacionamentos. Nesse campo, transtornos do Neurodesenvolvimento, como o Transtorno de Déficit de Atenção/Hiperatividade (TDAH) e o Transtorno do Espectro Autista (TEA), parecem contribuir para algumas dessas dificuldades. Os transtornos do neurodesenvolvimento são condições que surgem na infância e geralmente têm um grande impacto no funcionamento pessoal, laboral, acadêmico e social dos indivíduos e de suas famílias (APA, 2015).

1.3.1. Relacionamentos românticos e o TDAH

O TDAH, um dos transtornos do neurodesenvolvimento mais comuns, é marcado por uma frequência e intensidade elevadas de comportamentos impulsivos, hiperativos e desatentos. Apesar de ser comumente associado à infância, o TDAH afeta em torno de 3.4% dos adultos (Fayyad et al., 2007). Em geral, quando comparados a adultos sem problemas psiquiátricos, indivíduos com TDAH apresentam baixo rendimento acadêmico, desemprego e problemas de desempenho no trabalho (Biederman et al., 2006; Biederman et al., 2012; Voigt et al., 2017; Holst & Thorell, 2019). Adultos com TDAH também podem apresentar dificuldades sociais e interpessoais (Biederman et al., 1993; Eakin et al., 2004; Wilens & Dodson, 2004), e as dimensões cognitivas e comportamentais do transtorno podem impactar as experiências românticas de longo e curto prazo dos seus portadores.

É provável que existam muitas coisas que se poderia apreciar em ter um parceiro romântico com TDAH. Alguns aspectos comumente associados ao transtorno, como espontaneidade e abertura à experiência, por exemplo, podem fortalecer os laços com as parcerias românticas e contribuir de forma positiva com o relacionamento (Halverstadt; 1998). Ainda assim, a literatura sobre os relacionamentos românticos de indivíduos com TDAH têm apontado diferenças importantes em comparação com os pares, destacando, em sua maioria, as desvantagens do transtorno para os relacionamentos (Wymbs et al., 2021).

O TDAH parece estar associado com menor satisfação conjugal e uma maior incidência de divórcio (Biederman et al., 1993; Murphy & Barkley, 1996). Alguns resultados têm indicado que parceiros românticos de adultos com TDAH identificam comportamentos específicos consistentes com sintomas de desatenção e hiperatividade/impulsividade como motivos de discórdia em seus relacionamentos, como, por exemplo, não se lembrar de ter ouvido coisas ou dizer algo sem pensar (Robin e Payson, 2002). Os sintomas de desatenção também estão associados a reações menos construtivas às falhas dos parceiros e à maior atenção a parceiros alternativos, enquanto indivíduos que apresentam sintomas de hiperatividade/impulsividade apresentam falhas em inibir as respostas negativas aos parceiros e também a busca por parceiros alternativos (VanderDrift et al., 2019). Na mesma direção, Eakin (2004) encontrou que 96% dos cônjuges de adultos com TDAH relatavam que os sintomas de seus parceiros interferiam em seu funcionamento em um ou mais domínios, como a organização familiar geral e gerenciamento de tempo, por exemplo, enquanto 92% relatavam compensar de alguma forma as dificuldades de seus parceiros, o que poderia contribuir para taxas mais altas de divórcio e pior adaptação conjugal em adultos com TDAH.

Jovens adultos com TDAH também parecem recorrer a padrões de resolução de conflitos negativos mais frequentemente (Canu & Carlson, 2007; Overbey, Snell, & Callis, 2011). Indivíduos com o transtorno tendem a ser mais verbalmente agressivos e violentos em seus relacionamentos românticos do que os jovens adultos sem TDAH (Wymbs et al., 2017), e homens e mulheres com diagnóstico de TDAH quando crianças, especialmente aqueles com sintomas elevados quando adultos,

têm maior risco de serem vítimas de violência pelos parceiros (Guendelman et al., 2016; Wymbs et al., 2019). Além disso, indivíduos com TDAH iniciam relações sexuais, em média, de 1 a 2 anos antes e se envolvem em atividades sexuais mais arriscadas, como atividades sexuais casuais mais frequentes e menos uso de métodos contraceptivos, por exemplo, do que aqueles sem TDAH (Canu & Carlson, 2003; Donahue et al., 2013; Flory et al., 2006; Huggins et al., 2015; Rokeach & Wiener, 2018). Nesse contexto, adultos jovens com TDAH apresentam maior número de parceiros sexuais e risco aumentado de gravidez indesejável, além de maior frequência de infecções sexualmente transmissíveis (Flory et al., 2007; Winters et al., 2008; Barkley et al., 2010; Østergaard et al., 2017).

Entretanto, apesar de serem extensos os indícios de prejuízos relacionados ao TDAH no âmbito dos relacionamentos românticos, ainda são poucas as evidências que contribuam para a identificação e melhor entendimento dos fatores de risco associados. No que se refere ao comportamento sexual, Flory et al. (2007) teorizam que os adultos com TDAH são propensos a comportamentos sexuais de risco devido a fatores relacionados aos pares e ao contexto familiar. Nessa lógica, indivíduos com TDAH seriam mais propensos a se associarem com pares que favoreceriam o envolvimento em atividades mais arriscadas, por exemplo, o que, associado a uma má comunicação com os pais e à impulsividade, explicaria esse padrão de comportamento.

Outro aspecto que surge como possível explicação diz respeito à regulação emocional. Ao que parece, adultos com TDAH, pelo menos aqueles diagnosticados quando crianças, são neurológica e fisiologicamente predispostos à desregulação emocional, que, entre outras definições, pode ser entendida como uma incapacidade de regular respostas emocionais, o que resulta em respostas extremas, de natureza internalizante ou externalizante, e inapropriadas para a faixa de desenvolvimento do indivíduo (van Stralen, 2016). Bruner et al. (2015) descobriram que o nível de desregulação emocional seria maior entre estudantes universitários com sintomas mais elevados de TDAH, e que os problemas de regulação emocional foram positivamente associados à insatisfação nos relacionamentos amorosos. Outros resultados corroboram esses achados ao indicarem que adultos com TDAH diagnosticados na infância, e com altos níveis de desregulação emocional, também tendem a relatar mais prejuízos em relações sociais e românticas do que adultos sem histórico de TDAH (Barkley e Fischer, 2010). Além disso, a desregulação emocional parece mediar a associação entre os sintomas de TDAH e a satisfação no relacionamento, de forma que indivíduos com sintomas de TDAH mais elevados tenderam a relatar maiores déficits na regulação da emoção, que, por sua vez, foram associados com menor satisfação no relacionamento (Bodalski et al., 2019). E é, de fato, razoável pensar que uma tendência a expressar raiva, frustração, tristeza ou mesmo felicidade com pouca ou nenhuma regulação poderia explicar as dificuldades interpessoais de adultos com TDAH (Wymbs et al., 2021).

1.3.2. Relacionamentos românticos e o Transtorno do Espectro Autista

O TEA é um transtorno do neurodesenvolvimento que acomete cerca de 1.8% das crianças (Baio et al., 2018), e pode ser caracterizado por dificuldades nas interações sociais e na comunicação, bem como comportamentos e interesses restritos (APA, 2013). O comprometimento na interação social é uma característica central em indivíduos com o transtorno, que podem apresentar dificuldades para compartilhar interesses, entender e descrever expressões faciais e sentimentos sobre si mesmo e os outros (Hill, 2004). Além disso, é comum que pessoas com TEA apresentem dificuldades na interpretação de dicas sociais, e reajam de forma inadequada ao comportamento de outras pessoas (Baron-Cohen, 2008; Gillberg, 2001).

Levando em conta que essas são habilidades importantes para o desenvolvimento de relacionamentos próximos, não seria incabível supor que indivíduos com TEA apresentem dificuldades no tocante aos relacionamentos amorosos (Byers et al., 2013a; Strunz et al., 2017). De fato, Renty e Roeyers (2007) encontraram resultados sugerindo que a severidade de traços autistas pode ser relacionada a menor satisfação conjugal, enquanto Attwood e Garnett (2013) indicam que adolescentes com TEA podem sentir-se confusos pelos sentimentos e relacionamentos afetivos. Com relação às experiências românticas, os resultados ainda são divergentes, apontando para uma frequência que varia entre 17% e 73% de pessoas com TEA vivendo com um parceiro (Balfe e Tantam, 2010; Strunz et al., 2017; Dewinter, De Graaf e Begeer, 2017).

Atualmente já dispomos de uma série de resultados sugerindo que a maioria dos indivíduos com TEA expressa um desejo claro por relacionamentos afetivos, românticos e/ou sexuais (Byers, Nichols, Voyer, & Reilly, 2012; Hellemans, Colson, Verbraeken, Vermeiren, & Deboutte, 2007; Holmes & Himle, 2014). Apesar disso, até pouco tempo ainda se especulava sobre a necessidade e possibilidade de pessoas autistas manterem relacionamentos íntimos e duradouros (Engström et al., 2003; Schöttle et al., 2017).

Nesse sentido, é possível que alguns traços associados ao transtorno contribuam para a ideia de que pessoas com autismo não possuem interesses sexuais e/ou românticos. Por exemplo, em um estudo realizado por Strunz e colaboradores (2017), indivíduos com o transtorno apontaram que a interação com parceiro seria muito exaustiva para eles, além do medo de não suprir as expectativas como algumas das razões pelas quais não se encontravam em um relacionamento amoroso no momento. Nesse sentido, o estigma associado ao TEA, e a incerteza sobre a própria capacidade de estabelecer uma relação romântica também contribuiriam para maior isolamento e menos oportunidades para busca por um parceiro em potencial (Dewinter, De Graaf e Begeer, 2017). Além disso, muitos indivíduos com o transtorno podem apresentar uma hipersensibilidade a sons, cheiros, gostos, toques, temperaturas e texturas, o que poderia, por exemplo, tornar algumas interações físicas, como o beijo e outras carícias, algo extremamente desagradável e, muitas vezes, insuportável (Mendes, 2015). Tomadas em conjunto, esses aspectos podem tornar a busca de indivíduos com TEA por uma parceria romântica bastante desafiadora.

Como apontado anteriormente, os relacionamentos românticos têm se apresentado como um fator de extrema relevância para a saúde e bem-estar dos indivíduos (Henry et al, 2019; Sippel et al, 2015; Wang et al, 2018; Siedlecki et al, 2014), da mesma forma que o suporte provido pelo parceiro aparece como um fator protetivo para depressão e bem-estar em geral (Thoits, 2011; Gariépy, 2016; Proulx et al. 2007). E, uma vez que indivíduos com Transtornos do Neurodesenvolvimento parecem apresentar padrões mais negativos de formação e manutenção de relacionamentos amorosos, é importante buscar entender melhor os fatores associados a esses desfechos, especialmente quando consideramos a qualidade do relacionamento como aspecto essencial para garantia de melhor funcionamento e bem-estar geral (Whisman & Baucom, 2012).

1.4 Contexto de realização da pesquisa

Este trabalho foi idealizado com o propósito de investigar os mecanismos associados ao padrão e ao curso dos relacionamentos românticos de pessoas com TDAH e Autismo, por meio da aplicação de questionários e entrevistas. Nosso projeto envolvia inicialmente a avaliação presencial destes participantes no Centro de Tecnologia em Medicina Molecular da Universidade Federal de Minas Gerais, onde seriam adotados métodos de entrevista, avaliação psicológica e neuropsicológica. Contudo, após a aprovação e início do projeto, fomos forçados a mudar a logística e delineamento original diante do contexto sanitário imposto pela pandemia de COVID-19. Na instituição as atividades presenciais relacionadas à ensino, pesquisa e extensão, salvo os ambulatórios e hospitais, foram suspensas por quase dois anos. Sendo assim reformulamos nossa pesquisa de forma a melhor se enquadrar nestas condições.

Optamos neste sentido por dividir o projeto inicial em três estudos semi-independentes realizados antes e durante a emergência sanitária. Utilizamos para tanto métodos de avaliação não-presencial e assíncrona por meio da plataforma de coleta de dados *Google forms*. Os métodos de investigação foram adaptados para este contexto, utilizando perguntas fechadas para a coleta de dados sociodemográficos, instrumentos padronizados que se mostram válidos e confiáveis para uso nesta interface e diferentes formas de divulgação e recrutamento dos participantes.

Sendo assim, a tese apresenta como temática central os relacionamentos afetivos no contexto da pandemia de COVID-19 mas é composta por três estudos distintos. O primeiro apresenta alguns mecanismos psicossociais relacionados aos relacionamentos afetivos de pessoas com TDAH e com transtorno do espectro autista, destacando suas comunalidades. O segundo trabalho estudou o efeito da responsividade do parceiro afetivo ao estresse experienciado durante a pandemia. Por fim, o último estudo consistiu-se de uma análise longitudinal dos dados obtidos no estudo dois, analisando como as variáveis de interesse predisseram os desfechos experienciados pelos casais em sua segunda participação.

2. OBJETIVOS

2.1. Objetivos gerais

Estudo 1: Investigar os mecanismos psicossociais e as particularidades de relacionamentos românticos de adultos com TDAH e TEA.

Estudos 2 e 3: Observar a relação entre os relacionamentos românticos, a saúde mental e o stress durante a pandemia de COVID-19, bem como os possíveis desfechos associados.

2.2. Objetivos específicos

Estudo 1:

- Investigar se há correlação entre intensidade do amor romântico e sintomas de TEA e TDAH;
- Observar diferenças entre adultos com e sem sintomas de TDAH e/ou TEA na intensidade do amor romântico e no status de relacionamento;

Estudo 2:

- Investigar se há correlação entre os estressores sociais e laborais, humor negativo e qualidade do relacionamento;
- Investigar diferenças entre os três grupos (casados/moram juntos, namorando e solteiros) na responsividade percebida, nos estressores sociais e relacionados ao trabalho, e nas mudanças no humor negativo durante a pandemia de COVID-19;
- Investigar se a percepção da responsividade do parceiro seria moderadora da associação entre estressores relacionados ao COVID-19 e mudanças no humor negativo.

Estudo 3:

- Investigar se há efeito do tempo nos sintomas de depressão, ansiedade e nas mudanças de humor negativo;
- Investigar se há diferenças entre os grupos nos sintomas de depressão, ansiedade e nas mudanças de humor negativo;
- Investigar se há interação entre tempo e estado civil com relação aos sintomas de depressão e ansiedade, às mudanças de humor negativo e à satisfação com o relacionamento, bem como a percepção da responsividade do parceiro.

3. METODOLOGIA

Esta tese foi estruturada em torno de três estudos, sendo dois artigos científicos já publicados e um terceiro estudo em fase de submissão. Optou-se por essa estrutura, pois uma parte do material que compõe a tese já se encontra publicado em periódico científico e as metodologias empregadas são específicas de cada estudo.

3.1. Estudo 1

Soares, L. S., Alves, A. L. C., Costa, D. D. S., Malloy-Diniz, L. F., Paula, J. J. D., Romano-Silva, M. A., & Miranda, D. M. D. (2021). Common Venues in Romantic Relationships of Adults With Symptoms of Autism and Attention Deficit/Hyperactivity Disorder. *Frontiers in Psychiatry, 12*, 958.

Resumo: O Transtorno do Espectro Autista (TEA) e o Transtorno de Déficit de Atenção/Hiperatividade (TDAH) estão entre os transtornos do neurodesenvolvimento mais comuns. Apesar de terem estereótipos opostos, tanto o TDAH quanto o TEA comprometem, embora de maneiras diferentes, habilidades como interações sociais, habilidades de comunicação e pensamento social, que podem estar subjacentes às dificuldades nos relacionamentos românticos. Para este estudo, avaliamos 306 adultos com questões associadas aos seus relacionamentos amorosos e à intensidade de seu amor. Os participantes foram divididos em quatro grupos: indivíduos com traços de TEA, um grupo com sintomas apenas de TDAH, participantes sem sintomas de TDAH ou TEA (controle), e indivíduos com sintomas tanto de TDAH quanto de TEA. Nossos resultados apontam maior taxa de divórcio entre os indivíduos com sintomas de TDAH, enquanto no grupo de indivíduos com características de TEA encontramos menor frequência de pessoas casadas e mais pessoas que nunca haviam se casado. Além disso, os sintomas de TDAH e TEA foram associados a uma maior intensidade de amor apaixonado. As dimensões comportamentais do TDAH e do TEA podem impactar de maneiras distintas as experiências dos indivíduos com relacionamento afetivos, em curto e longo prazo, e compreender como as pessoas com transtornos do neurodesenvolvimento vivenciam o amor pode nos ajudar a esclarecer melhor os mecanismos associados a seus padrões de relacionamento.

3.2. Estudo 2

Soares, L. S., Rodrigues, A. C., L. F., Paula, J. J. D., Thorell, L. B. & Miranda, D. M. D. (2021). Partner responsiveness moderates the relation between COVID-19-related stressors and changes in mood during the pandemic. Submetido para publicação.

Resumo: A pandemia de COVID-19 criou uma situação especialmente estressante para muitas pessoas em todo o mundo. Devido às restrições, muitos ficaram isolados em suas casas e ter um parceiro responsivo pode ter se tornado ainda mais importante. O presente estudo teve como objetivo investigar

(1) se houve diferenças nos estressores sociais e relacionados ao trabalho e mudanças no humor negativo durante a pandemia de COVID-19 em função do estado civil, e (2) se a percepção da responsividade do parceiro pode atenuar associações entre estressores relacionados ao COVID-19 e mudanças no humor negativo. Os participantes foram 2.400 brasileiros adultos recrutados via Internet, por meio de uma estratégia de amostragem virtual, que foram divididos em três grupos distintos com base em seu status de relacionamento. Os resultados mostraram que uma proporção relativamente grande da amostra relatou níveis aumentados de humor negativo, e que casais casados ou que moram juntos relataram níveis mais baixos de alterações negativas de humor, em comparação com participantes solteiros. Também descobrimos que a responsividade do parceiro atenuou a associação entre estresse e saúde mental, mas apenas para pessoas que estavam namorando. Nosso estudo contribui com novos insights, mostrando que os efeitos na saúde mental durante a pandemia de COVID-19 dependem do tipo de relacionamento e da percepção da capacidade de resposta do parceiro.

3.3. Estudo 3

Soares, L. S., Paula, J. J. D., Thorell, L. B. & Miranda, D. M. D. (2022). One year into the pandemic: A longitudinal perspective on the impact of romantic relationships on mental health outcomes during the COVID-19 pandemic. **To be submitted.**

Resumo: A pandemia de COVID-19 gerou grandes transformações em todo o mundo, incluindo mudanças sociais, econômicas e comportamentais. Com o objetivo de mitigar a propagação do vírus, as pessoas foram orientadas a ficar em casa e evitar o contato interpessoal, resultando em um isolamento social rigoroso. O presente estudo teve como objetivo explorar e entender a dinâmica e o curso dos relacionamentos românticos após um ano de pandemia, e de que forma eles podem afetar a saúde mental dos indivíduos após esse período. Os participantes foram 415 brasileiros adultos que responderam à pesquisa em dois momentos (T1, jun-set/2020 e T2, jun-set/2021) durante a pandemia, classificados em três grupos: solteiros, casados/moram juntos, e namorando. Os resultados das análises longitudinais apontam para uma piora dos níveis de estresse relacionados a mudanças provocadas pela pandemia. Apesar disso, os participantes reportam maior satisfação com o relacionamento, bem como na responsividade percebida. Além disso, observamos uma melhora no humor dos participantes a depender do estado civil, de forma que indivíduos casados ou que moravam juntos apresentaram melhora do humor mais pronunciada, quando comparados a indivíduos solteiros e que namoravam. Identificar fatores que poderiam atuar como facilitadores, bem como encontrar maneiras de criar e fortalecer conexões mais próximas e profundas, pode ser útil para pensar em estratégias práticas ao enfrentar crises e situações desafiadoras.

4. RESULTADOS

4.1. Artigo 1

Soares, L. S., Alves, A. L. C., Costa, D. D. S., Malloy-Diniz, L. F., Paula, J. J. D., Romano-Silva, M. A., & Miranda, D. M. D. (2021). Common Venues in Romantic Relationships of Adults With Symptoms of Autism and Attention Deficit/Hyperactivity Disorder. *Frontiers in Psychiatry, 12*, 958.



Common Venues in Romantic Relationships of Adults With Symptoms of Autism and Attention Deficit/Hyperactivity Disorder

Lorrayne Stephane Soares¹, Ana Luiza Costa Alves¹, Danielle de Souza Costa¹, Leandro Fernandes Malloy-Diniz^{1,2}, Jonas Jardim de Paula^{1,3}, Marco Aurélio Romano-Silva^{1,2} and Débora Marques de Miranda^{1,4*}

¹ Programa de Pós-Graduação em Medicina Molecular, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil,

² Department of Mental Health, Universidade Federal de Minas, Belo Horizonte, Brazil, ³ Department of Psychology,

Faculdade de Ciências Médicas de Minas Gerais, Belo Horizonte, Brazil, ⁴ Department of Pediatrics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

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*Correspondence:

Débora Marques de Miranda
debora.m.miranda@gmail.com

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Introduction: Autism Spectrum Disorder (ASD) and Attention Deficit/Hyperactivity Disorder (ADHD) figures among the most common neurodevelopmental disorders. Despite having opposite stereotypes, both ADHD and ASD compromise, though in different ways, skills such as social interactions, communication skills, and social thinking, which may underlie difficulties in romantic relationships.

Methods: We evaluated 306 adults about their romantic relationships and the intensity of their love. Participants were from one of four groups: individuals with ASD-only traits, a group with symptoms of ADHD-only, participants with neither ADHD nor ASD symptoms (control) or from a fourth group of individuals with both ADHD and ASD traits.

Results: The ASD traits group had fewer married people and more people who have never been married, while the rate of divorce was higher in the ADHD traits group. Regarding the intensity of love, the mean scores of the ADHD and the ADHD+ASD traits groups were higher in the Passionate Love Scale than the mean score of the control group. Passionate love in the ASD group was no different from the other groups. Small positive correlations were found between passionate love and ADHD and ASD behavioral problems.

Conclusion: Marital status was distinct depending on symptoms of a neurodevelopmental disorder in adulthood. Also, ADHD and ASD symptoms were associated with greater passionate love. Therefore, ADHD and ASD behavioral dimensions may impact long-term and short-term experiences of a person's relationship with a significant other in distinct ways. Understanding how people with neurodevelopmental disorders experience love might help us to better clarify the mechanisms associated with their relationship patterns.

Keywords: autism, ADHD, romantic (love), passionate love, attention deficit/hyperactivity disorder

INTRODUCTION

Neurodevelopmental disorders are childhood-onset conditions that commonly have a major impact on the personal, laboral, academic, and social functioning of individuals and their families. Two of the most frequent disorders diagnosed early in life are Autism Spectrum Disorders (ASD) and Attention Deficit Hyperactivity Disorder (ADHD), with a prevalence of ~1.8 and 5.29% of affected children (1, 2), respectively. Although these conditions are usually associated with childhood, 2.5–5% adults worldwide are affected by ADHD (3, 4), and 80–99% of all children with ASD diagnosis will meet criteria in adulthood (5, 6). Although ASD and ADHD show important differences in core symptoms, they share neurobiological, psychological, and behavioral characteristics, in addition to a high rate of co-occurrence (7–9).

ADHD is a heterogeneous disorder marked by inattentive and/or hyperactive/impulsive behaviors. Its functional impairment includes poor occupational performance, lower level of education, higher rates of delinquent behaviors, traffic accidents, self-reported happiness, marital dissatisfaction and divorce (1, 10–14). Although individuals with ADHD may often seem as outgoing and amusing people, they frequently suffer from social and interpersonal problems (15, 16). These social impairments encompasses a broad range manifestations as deficits in processing negative emotions in facial expressions or perceiving their inadequate behavior and inhibit ongoing actions toward more appropriate ones (17). They have poor social skills being commonly rejected by their peers and having difficulty to establish a relationship with a partner (15, 18). ASD shares some of the functional and social impairments associated with ADHD, such as difficulties in social interactions and communication (19). Impairment in social interaction is a core finding in ASD, cursing with difficulties to share interests, to understand and to describe facial expressions and feelings about yourself and others (20). ASD also is marked by a heterogeneous presentation, varying in cognitive disability, behavioral and functional profiles (21).

Considering that understanding, developing and maintaining intimate relationships requires social interactions, communication skills and social thinking (22, 23), individuals with ADHD and ASD might experience difficulties related to those (22, 24, 25). Indeed, Canu and Carlson (26) found that college students with the inattentive type of ADHD reported less and a later start of dating relationships, compared to college students with the combined type or with typical development. Girls diagnosed with ADHD in childhood reported fewer romantic relationships in late adolescence and early adulthood (27). Young adults with ADHD also presented an increased risk for undesirable pregnancies, higher frequency of sexually transmitted infections, casual sex and a greater number of sexual partners (28–32).

Concerning ASD individuals, data on their love life is inconsistent. Lau and Peterson (33) found that the presence of ASD symptoms didn't seem to influence marital satisfaction at a significant level, while Deguchi and Asakura (34) observe that wives of husbands with ASD report feeling lonely and socially excluded. Moreover, there is a general agreement that the

frequency of ASD individuals in a romantic relationship is lower when compared with typically developed individuals (23).

Individuals with autism are frequently portrayed as insensitive and cold, that lack the need for love. Some traits, such as dislike being touched and poor comprehension of social signs, contribute to social stereotypes, labeling individuals with autism as asexual or uninterested in romantic relationships (22, 35–37), stereotypes which are reinforced by media which frequently consider autism as opposed to romantic love (38). However, researches indicate that adults with ASD would like to have romantic relations and report suffering from having those social impairments (39, 40).

Meanwhile, individuals with ADHD are often viewed as more creative, passionate and intense (12), a portrayal that is probably related to their high impulsivity. Acting without thinking or acting in the “heat of the moment” are very common behaviors among ADHD individuals, and such characteristics may contribute to describing them as passionate people who listen to their hearts or follow their instincts no matter what.

Nevertheless, these characteristics may also contribute to higher rates of divorce and poorer marital adjustment within adults with ADHD (41). Considering the response to undesirable partner's behavior, both the inattentive and the hyperactive/impulsive individuals present poor coping strategies to solve problems (42). Inattentive ADHD symptoms are related to less constructive reactions to the partners' failures and paying more attention to alternative partners. Those individuals presenting symptoms of hyperactivity-impulsivity present failure in inhibit negative responses to their partner and this could lead to the fail the search for an alternative partner.

Previous studies pointed to an association between marital quality and health, with divorce being correlated with poorer outcomes, as a greater risk for early death, for mental illness and with alterations in endocrine and immune function (43–45). Wherefore, passionate love, defined as a state of intense longing for union (46), a strong positive feeling toward the other one (47), seems to be an essential element. Although it is known as the first phase of a relationship, passionate love is important not only to initiate but also for maintaining a relationship, being predictive of relationship satisfaction, on both short and long-term relationships (48, 49). Love was also associated with relationship length. Results from Ratelle et al. (50) suggested that the stronger the feelings of love toward the partner, the greater the chances of the couple still being together after 3 months. Moreover, between other aspects, couples who divorced earlier showed lower levels of love when compared to couples who divorce later and with happily married couples (51).

Considering the impact on mental health and well-being of dysfunctional or unsatisfactory romantic relationships, our study aimed to investigate the characteristics of passionate love among individuals with symptoms of ASD and ADHD.

METHODS

Participants and Procedures

Participants were 306 Brazilian adults (i.e., ≥18 years) recruited *via* the internet through a virtual snowball sampling strategy (banner ad posted at the researchers' social media) for a partially

online open survey specifically designed to study cognition, behavior, and adaptive functioning depending on ASD traits in adults. The research is under the Helsinki Declaration principles and was approved by the local ethics board (registry: CAAE 56534516.1.0000.5149). Participants were assigned to four distinct groups according to clinical cut-off points on ADHD and ASD screening tools. To assess the ADHD symptoms we used the Adult Self-Report Scale (ASRS-v1.1) (52), and to evaluate autism traits we used the Autism-Spectrum Quotient (AQ) (53), besides a recall of behavioral symptoms' onset. Ninety-two (30%) participants had no criteria for clinical risk attribution (scores below the cut-off points and/or passed the age of onset), so they were grouped as typically developed individuals (i.e., control group). Forty-two (14%) participants were at clinical risk for ASD, 76 (25%) individuals for ADHD, and 96 (31%) showed scores suggesting a simultaneous risk for clinical ASD and ADHD (ASD + ADHD).

Participants voluntarily consented with their participation by clicking a button "I agree" in the electronic questionnaire after reading an invitation explaining the purpose of the study, the duration of the form, data that were being stored, and confidentiality security. No incentives were offered for voluntary participation. No technical issues were reported to our research team during data collection. Data were obtained from July 2016 to July 2017, and all questionnaire items were presented in a fixed order for all participants, independent of their response choices. Responses could be changed before submission, but not after. A second submission was not readily available for participants. Duplicates were identified by participants' full name, which was visible only for one researcher (JJP) before masking (each participant received a numeric ID), and only the first response was kept. Participants took an average of 30 min to respond to the electronic questionnaire.

Instruments

Passionate Love Scale

To assess the passionate love intensity we used the short version of the Passionate Love Scale (PLS) (46), a 15-item instrument which, summed up, suggests a global measure on how much in love the respondent is. PLS is an unidimensional instrument, which evaluates cognitive, emotional and behavioral features of passionate love (46). The cognitive elements comprise the concerns related to the special other, as intrusive thinking and the partner or the relationship idealization. The behavioral and emotional features include aspects associated with the attraction toward the special one, as physiological arousal, physical proximity, positive and negative feelings, and availability to the other (46, 54, 55).

Sociodemographic Characteristics

The Brazilian Economic Classification Criteria (CCEB) was used to characterize the participants' socioeconomic status. Scores can vary from 0 to 100 and classified in one of six socioeconomic strata: A (monthly household income estimation of U\$ 20888.00), B1 (monthly household income estimation of U\$ 9254.00), B2 (average household income of U\$ 4852.00), C1 (average household income of U\$ 2705.00), C2 (average

household income of U\$ 1625.00), and DE (average household income of U\$ 768.00) (56).

Statistical Procedures

All analyses were performed with SPSS 22.0. Descriptive statistics and Spearman's correlation analyses were conducted within the entire sample to investigate variables distribution and their associations. Comparisons between the groups regarding passionate love, ADHD and ASD traits, instruction, sociodemographic measures and age, were performed by the Kruskal-Wallis test. Then, for further details of the results, we used Mann-Whitney tests (Bonferroni corrected) to specific group comparisons. Differences between groups regarding marital status and sex distribution were performed by chi-square tests.

RESULTS

In this survey, respondents' age varied from 18 to 58 years ($M = 31.8$; $SD = 8.5$) being predominantly female (73.9%). This distribution is in accordance with some results that suggest a gender bias, especially in surveys related to mental health and emotional issues (57, 58). Nevertheless, we found no significant differences in the distribution of sex ($\chi^2 = 4.81$, $p = 0.186$) between groups. The sample was classified according to the participants' scores on ADHD and ASD screening scales. Thus, 30.1% (Group 1, $n = 92$) had negative scores for both ADHD and ASD, 13.8% (Group 2, $n = 42$) had high scores for autism traits, 24.8% (Group 3, $n = 76$) had clinical scores only for ADHD, in which 34.2% were inattentive, 14.5% hyperactive, and 51.6% combined, and 31.4% (Group 4, $n = 96$) had clinical scores for both conditions. The participants' description is shown in **Table 1**. We found no significant differences between the distribution of age ($Z = 2.44$, $p = 0.486$), education ($Z = 5.85$, $p = 0.119$) and sociodemographic measures ($Z = 0.68$, $p = 0.876$) between groups. Of the total sample, 45.7% ($n = 139$) was in a steady relationship (married or living with their partner), while the others 54.3% ($n = 165$) had never been married, or were widowed, separated or divorced at the time. There were also significant differences in the marital status distribution (**Table 2**; $\chi^2 = 36.948$, $p = 0.001$) between groups (**Figure 1** and **Table 2**).

Regarding the intensity of passionate love, **Table 3** shows a significant correlation with symptoms of inattention ($r = 0.253$, $p < 0.01$) and hyperactivity/impulsivity ($r = 0.204$, $p < 0.01$), assessed by ASRS-18, and with Autism Quotient ($r = 0.212$, $p < 0.01$) (**Table 3**). Comparing the groups' intensity of love, we found differences between the ADHD ($H = -42.05$, $p = 0.013$) and the ADHD + ASD-traits group ($H = -70.55$, $p < 0.001$) when compared with the control group (**Table 1**). Within the ADHD-traits group, we also found a significant difference, with a higher PLS score in the inattentive group ($Z = -52.31$, $p = 0.001$) and in the combined group ($Z = -40.24$, $p = 0.007$) when compared to the control group, while the hyperactive/impulsive group showed no significant difference ($p = 0.058$) in this comparison.

TABLE 1 | Participant's description and group comparison.

| | Control (n = 92; 81.5% female) | | ASD-traits (n = 42; 66.7% female) | | ADHD-traits (n = 76; 75% female) | | ADHD + ASD-traits (n = 96; 69.8% female) | | Group comparison | | |
|-------------------------------------|---|-----------------|--|------|---|------|---|------|------------------|-------|-------------------|
| | M ^a | SD ^b | M | SD | M | SD | M | SD | Z ^c | p | Post-hoc* |
| Age | 32.42 | 9.5 | 31.63 | 8.09 | 37.70 | 8.1 | 32.41 | 7.93 | 2.44 | 0.486 | - |
| Education | 20.63 | 5.73 | 19.43 | 5.35 | 20.20 | 6.5 | 18.81 | 5.65 | 5.85 | 0.119 | - |
| Inattention (ASRS-18) | 14.63 | 4.81 | 16.48 | 5.13 | 25.46 | 5.68 | 24.79 | 5.35 | 149.020 | <0.01 | 1 < 3 > 2 < 4 |
| Hyperactivity/impulsivity (ASRS-18) | 13.7 | 5.61 | 15.38 | 4.93 | 21.74 | 5.93 | 22.23 | 5.57 | 105.346 | <0.01 | 1 < 3 > 2 < 4 |
| Autism quotient | 20.79 | 7.0 | 37.83 | 3.29 | 22.57 | 5.98 | 38 | 4.07 | 227.598 | <0.01 | 3 < 4 > 1 < 2 < 4 |
| Passionate love scale (15 items) | 83.27 | 24.37 | 92.43 | 27.1 | 94.51 | 5.36 | 101.77 | 25.8 | 30.134 | <0.01 | 3 > 1; 4 > 1 |

^aM, mean.

^bSD, Standard Deviation.

^cZ, Kruskal-Wallis-Test.

*Performed by group-group Mann-Whitney-tests with Bonferroni correction.

TABLE 2 | Marital status' distribution among groups.

| Marital status | Groups | | | |
|--------------------|---------------------|------------------------|-------------------------|-------------------------------|
| | Control (n = 92) | ASD-traits (n = 42) | ADHD-traits (n = 76) | ADHD + ASD-traits (n = 96) |
| Married | 42 (45.7%) | 8 (19%) | 20 (26.3%) | 32 (33.3%) |
| Cohabiting | 8 (8.5%) | 6 (14.3%) | 10 (13.2%) | 15 (15.6%) |
| Never been married | 35 (38%) | 27 (64.3%) | 37 (48.7%) | 37 (38.5%) |
| Divorced | 13.7 (3.3%) | 1 (2.4%) | 7 (9.2%) | 2 (2.1%) |
| Separated | 2 (2.2%) | 0 (0%) | 2 (2.6%) | 10 (10.4%) |
| Widower | 2 (2.2%) | 1 (2.4%) | 0 (0%) | 2 (0.7%) |

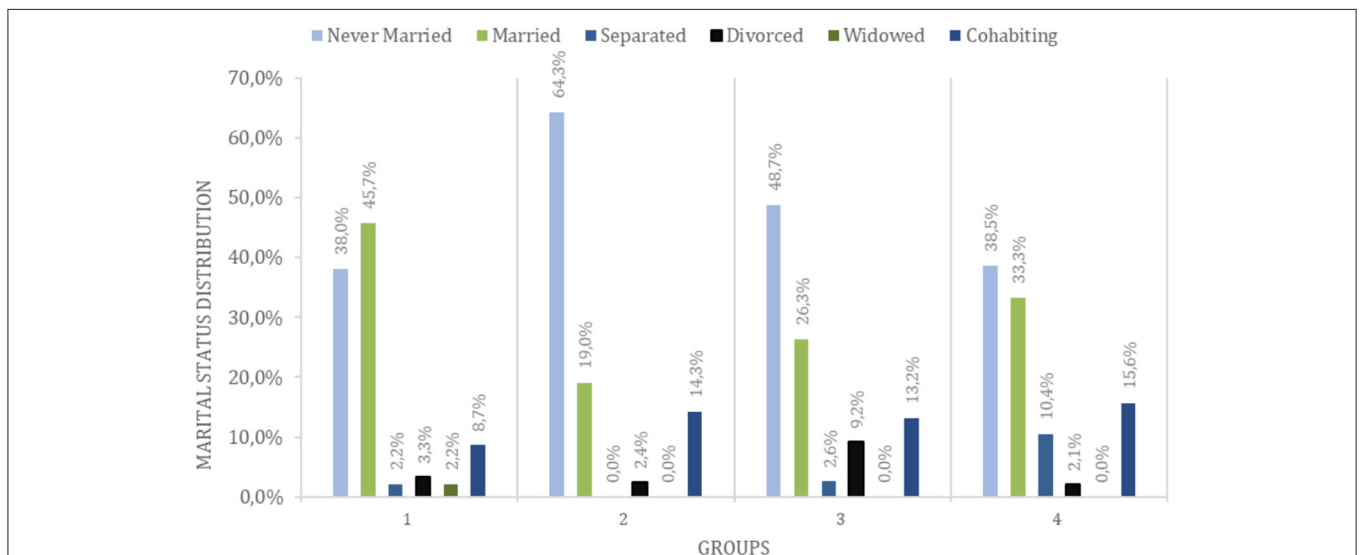


FIGURE 1 | Marital status distribution by group. 1 = Control group, 2 = ASD-traits group, 3 = ADHD-traits group, 4 = ADHD + ASD-traits group.

TABLE 3 | Participants' correlations among passionate love and symptoms of autism and ADHD.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|-------|--------|--------|--------|--------|--------|--------|
| 1. PLS ^a | 1.000 | 0.253* | 0.204* | 0.212* | 0.103 | 0.049 | -0.039 |
| 2. Inattention (ASRS-18 ^b) | | 1.000 | 0.483* | 0.234* | -0.075 | -0.089 | 0.021 |
| 3. Hyperactivity/impulsivity (ASRS-18) | | | 1.000 | 0.237* | -0.010 | -0.010 | -0.017 |
| 4. Autism quotient | | | | 1.000 | 0.077 | -0.062 | -0.087 |
| 5. Age | | | | | 1.000 | 0.387* | 0.218* |
| 5. Education | | | | | | 1.000 | 0.286* |
| 6. Sociodemographic status (CCEB ^c) | | | | | | | 1.000 |

**p* < 0.01.

^aPLS, *Passionate Love Scale*.

^bASRS-18, *Adult Self-Report Scale*.

^cCCEB, *Brazilian Economic Classification Criteria* (higher scores suggest higher socioeconomic situation).

DISCUSSION

Previous studies have suggested that individuals with ADHD and ASD may experience difficulties related to romantic relationships, whether to initiate or maintain it (22, 25, 40). Previously, individuals with ASD have declared to have fewer romantic partners when compared to typically developed individuals (23). Individuals with ASD symptoms seem to have less exposition in any kind of relationship. In the ASD-traits group, there is a lower frequency of married people and a higher proportion of people who have never been married, while the ADHD appears to have a four times higher chance to have a divorce, confirming an impact in relationships. Both divorce and marital separation are two of the most stressful life events an individual can undergo, being considered more stressful than the death of a close relative or being in jail (59, 60).

Here we focused on the potential for any difference regarding the intensity of love feelings between people with high ADHD and autism traits and people without symptoms of any of these diagnoses. Romantic or passionate love is an intense emotional state typical of the beginning of romantic relationships, marked by profound feelings of attraction and commitment, as well as by obsessive characteristics, such as a jealous dependence and intrusive thoughts about the partner (48, 61). Some researches point to an association between romantic love, mental health and overall well-being and quality of life (48, 62), as well as with both marital and life satisfaction (63, 64). Moreover, if we exclude the obsessional aspects of early-stage love, it seems to be correlated with relationship satisfaction even in long-term relationships, suggesting that passionate love might be important not only in the formation but also in the maintenance phases of a relationship (48).

Our results suggest that the intensity of passionate love in ADHD-traits and the ADHD+ASD-traits group is greater than in the group with no symptoms, which could be interpreted as a trace of emotion dysregulation, a very common aspect among people with ADHD (65). Emotional regulation comprises a range of mechanisms associated with self-regulation, which encompasses some features as intensity, duration and stability of emotions, and skills of affection recognition, modulation and responsiveness (66–68). Although most researchers may focus

on aspects related to emotional responsiveness, with special attention to reactivity to negative emotions, results from Rapport et al. (69) indicate that adults with ADHD appear to experience their own emotions with greater intensity, when compared to adults without the disorder, suggesting that individuals with ADHD may not only respond more intensely to their emotions but also feel that way.

Further analysis also suggested that the difference found in the ADHD-traits group was probably related to the inattentive dimension of the disorder. In previous studies, the ADHD inattentive presentation was associated with lower romantic satisfaction and less expression of love and affection (70). Indeed, behaviors that provoked the most negative reactions in partners of individuals with ADHD correspond to inattentive symptoms more than to hyperactivity (71). Moreover, inattentive individuals might be rated as unassertive and uninterested, which could explain their rejection rates regarding the beginning of romantic relationships (72).

These results are in accordance with the proposition that the point of difficulty in the interpersonal interaction might be in self-regulation of emotion as it is experienced and expressed (69). People with ADHD might have an accurate perception of social cues and their own emotions but may fail to act properly (65, 69), as individuals with ADHD seem to engage less in steady relationships and more likely to divorce, although they feel love more intensely.

The ASD-traits group does not differ from the ADHD, control and ADHD+ASD-traits group in the romantic love intensity, suggesting that adults with high autism traits do not experience less or more passionate love in their lives compared to the other groups. Although ASD has a very heterogeneous manifestation, difficulties with social interaction, in general, are a core trait, which includes deficits with verbal and non-verbal communication (21). They usually report difficulties expressing their feelings and emotions, to understand and predict other people's mental states and facial expressions (20). In addition, an individual with autism could have difficulties to initiate or to maintain a conversation, sharing their interests, or to modulate behavior considering the context (25, 73). Indeed, those aspects will impact the development of any kind of relationship, including romantic ones. A study developed by Stokes et al. (74),

investigated the nature and predictors of social and romantic functioning in adolescents and adults with ASD. Their results suggested that the autism group reported less access to peers and friends compared to the control group, and this fact probably impacts the learning of social rules and romantic skills.

The common image of an individual with ASD is a person for whom love has no meaning, no draw, no neurochemical reward related to love, however, nothing of this picture was sustained by our data. Despite this, feeling in love is not a lacking emotion for those who have plenty of symptoms compatible with ASD. Our findings agreed with other reports, that individuals with autism, as well as those with a neurotypical development, also desire to be in an intimate and romantic relationship, even when they lack understanding of them, do not have skills, previous experiences, or knowledge to initiate those interactions (23, 75).

fMRI findings suggest that passionate love recruits brain regions involved in complex cognitive processing, such as social cognition, body image, self-representation and attention (76). We observe more or at least the same intensity of passionate love in those who have ASD and/or ADHD symptoms, but the mechanisms of ASD and ADHD symptoms impact in romantic relationships are still to be addressed in further studies.

An important limitation is the fact that we analyzed the relationship effects under the presence of symptoms without a diagnostic interview and evaluated only the romantic love effect without any information about the long-term features of love or less stable relationships. Another limitation was the survey's sex distribution, which was predominantly female. Since both ADHD and ASD are more prevalent among males, this could imply a sampling bias. Furthermore, there was also a difference in the sample distribution within the ADHD group, so the results should be interpreted with caution. A strength of our study was the evaluation of the dimensional effect presented in the individuals.

In conclusion, the relationship seems to be impacted by the presence of symptoms of neurodevelopmental disorders, having more impact on individuals with symptoms compatible with ASD. However, the impact apparently is not related to the intensity of love in the individual's point of view. Subjects with higher symptoms of ADHD and with high ADHD and ASD

traits described having a higher intensity of romantic love, and nevertheless have less stable relationships. They are more likely to have a divorce, pointing toward a possible gap between feeling and expressing their emotions. Further studies are necessary to understand the mechanisms of differences and mechanisms of the relationship deficits. Improvement in relationships showed a beneficial impact and a universal protective factor, however, preventing bad relationships is a more important goal than getting an average relationship to a more satisfactory level (77). Interventions focused on preventing relationship dysfunction should have great potential. Thus, understanding how these population experiences love might help us to clarify points to be addressed in social training and mechanisms associated with their relationship patterns.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by UFMG Ethical Board. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

Material preparation, data collection, and analysis were performed by LS and AA. The first draft of the manuscript was written by LS. All authors commented on previous versions of the manuscript, contributed to the study conception and design, and read and approved the final manuscript.

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Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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4.2. Artigo 2

Soares, L. S., Rodrigues, A. C., de Paula, J. J., Thorell, L. B., & de Miranda, D. M. (2021). Partner responsiveness moderates the relation between COVID-19-related stressors and changes in mood during the pandemic. *Current Psychology*, 1-8.



Partner responsiveness moderates the relation between COVID-19-related stressors and changes in mood during the pandemic

Lorrayne Stephane Soares¹ · Aliny Cristina Rodrigues² · Jonas Jardim de Paula^{1,3} · Lisa B. Thorell⁴ · Debora Marques de Miranda⁵

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Abstract

The COVID-19 pandemic has created an unusually stressful situation for many people around the world. Due to the restrictions, many have been isolated in their homes, and having a responsive partner may have become even more important. The present study aimed to investigate (1) whether there were any differences in social and work-related stressors and changes in negative mood during the COVID-19 pandemic as a function of marital status, and (2) whether perceived partner responsiveness can attenuate the associations between COVID-19-related stressors and changes in negative mood. The participants were 2,400 Brazilian adults recruited via the Internet, using a virtual sampling strategy. They were assigned to three distinct groups based on their relationship status. The results showed that a relatively large proportion of the sample reported increased levels of negative mood, and that married/cohabitating couples reported low levels of negative change in mood compared to single participants. We also found that partner responsiveness attenuated the association between stress and mental health, but only for people who were dating. Our study contributes new insights by showing that effects on mental health during the COVID-19 pandemic are dependent on relationship type and perceived partner responsiveness.

Keywords Relationships · COVID-19 · Mental health · Relationship quality · Single · Married

Previous research has shown that the COVID-19 pandemic has had severe negative effects on mental health (e.g., reviews by Rajkumar, 2020; Vindegaard & Benros, 2020; Xiong et al., 2020), but less is known about its effects on relationships. However, an association between stress and relationship decline during the pandemic has been found

(Goodwin et al., 2020), and people who experienced higher COVID-19-related stress have reported lower relationship satisfaction and more conflicts (Balzarini et al., 2020).

Although the studies mentioned above suggest problems in intimate relationships during the pandemic, it is important to note that married people have reported lower levels of stress compared to people who were not in a romantic relationship (Kowal et al., 2020). Thus, social support may act as a stress buffer in times of crisis (Dalgard et al., 1995; Feeney & Collins, 2015), most likely because social support is associated with better resilience and more positive outcomes with regard to mental health problems and related symptoms, recovery and functioning (Henry et al., 2019; Siedlecki et al., 2014; Sippel et al., 2015; Wang et al., 2018).

The COVID-19 pandemic has created an unusually stressful situation for many people around the world. Due to the restrictions, many have been isolated in their homes, and having a responsive partner may have become even more important. In line with this thinking, Balzarini et al. (2020) found that high partner responsiveness attenuated the associations between COVID-19-related stressors and relationship

✉ Lorrayne Stephane Soares
lorraynesoares.psi@gmail.com

¹ Programa de Pós-Graduação Em Medicina Molecular, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

² Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

³ Department of Psychology, Faculdade de Ciências Médicas de Minas Gerais, Belo Horizonte, Brazil

⁴ Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

⁵ Department of Pediatrics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

quality. However, mental health was not included as an outcome variable in their study, and we therefore do not know to what extent perceived partner responsiveness can also attenuate the association between COVID-19-related stressors and mental health. The overall aim of the present study was therefore to investigate the following research questions:

1. Are there group differences between married, dating and singles with regard to social and work-related stressors and changes in negative mood during the COVID-19 pandemic?
2. Are COVID-19-related stressors related to changes in negative mood during the pandemic and can perceived partner responsiveness attenuate these associations?

Methods

Participants and Procedures

Participants were 2,400 Brazilian adults recruited via the Internet, using a virtual sampling strategy (banner ad posted on the researchers’ social media), and through articles published in local newspapers and radio programs. Participants were assigned to three distinct groups: 1) single group ($n = 376$), who were not in a romantic relationship of any kind, 2) dating group ($n = 835$), who were in a romantic relationship but did not live together, and 3) married group

($n = 1189$), who were married or cohabiting (see Table 1). Data were collected from June to September 2020.

Measures

Mood

Participants were asked to rate their current emotional state (i.e., previous 2 weeks) in relation to the following statements: “I feel sad,” “I feel anxious,” “I have a poor appetite,” “I have sleeping problems (i.e., insomnia, oversleep),” “I feel angry,” and “I feel lonely.” Ratings were made on a scale ranging from 1 (“much less than before”) to 5 (“much more than before”). Despite the relatively low number of items in this scale, the internal consistency was adequate ($\alpha = 0.80$).

Social and work-related changes

Participants indicated (yes/no) whether they had experienced changes due to the pandemic, With regard to social stressors, the statements were the following: 1) “I’ve been seeing my friends less often,” 2) “I’ve been seeing my family less often,” 3) “I’ve been seeing my partner less often,” and 4) “I’ve been using digital media more often as a social interaction tool.” Work-related stressors included the following: 1) “My workload has increased,” and 2) “I lost my job”. Previous research has shown that these are the most frequent social and work-related effects reported during the COVID-19 pandemic (Ammar et al., 2020;

Table 1 Results of ANOVAs comparing the three groups with regard to the background variables and ANCOVAs (controlling for age) examining group differences in social and work-related change

| | Single (1) ($n = 376$) | Dating (2) ($n = 835$) | Married (3) ($n = 1189$) | Group comparison | Post hoc |
|-----------------------------|-----------------------------|-----------------------------|-------------------------------|------------------|-----------|
| Age | 30.07 (11.14) | 28.02 (8.784) | 36.53 (9.13) | 520.01*** | 2 < 1 < 3 |
| Sex (% males) | 133 (35.4%) | 213 (25.5%) | 331 (27.8%) | 12.61** | 1 > 2, 3 |
| Education | | | | 243.13*** | |
| Primary | 9 (2.4%) | 6 (0.7%) | 14 (1.2%) | | |
| Secondary | 190 (50.5%) | 375 (44.9%) | 210 (17.7%) | | 1, 2 > 3 |
| University | 177 (47.1%) | 454 (54.4%) | 965 (81.2%) | | 3 > 1, 2 |
| SES score | 31.79 (9.82) | 32.02 (10.04) | 35.27 (8.617) | 97.93*** | 3 > 1, 2 |
| Social change | | | | | |
| See family less often | 144 (38.3%) | 403 (48.3%) | 759 (63.8%) | 94.65*** | 3 > 2 > 1 |
| See friends less often | 209 (55.6%) | 538 (64.4%) | 728 (61.2%) | 8.62** | 2 > 1 |
| See partner less often | - | 341 (40.8%) | 26 (2.2%) | 646.22*** | 2 > 3 |
| Use social media more often | 265 (70.5%) | 562 (67.3%) | 652 (54.8%) | 47.03*** | 1, 2 > 3 |
| Work-related change | | | | | |
| Increased workload | 91 (24.2%) | 252 (30.2%) | 396 (33.3%) | 11.33** | 3 > 1 |
| Unemployed | 17 (4.5%) | 49 (5.9%) | 42 (3.5%) | 6.23* | 2 > 3 |
| Mental health | | | | | |
| Mood | 3.68 (0.81) | 3.64 (0.71) | 3.52 (0.72) | 4.92** | 1, 2 > 3 |
| Responsiveness | - | 4.13 (0.93) | 3.71 (1.17) | 597,199.5*** | 2 > 3 |

* $p < .05$, ** $p < .01$, *** $p < .001$

Agha, 2021; Craig & Churchill, 2021; Suka et al., 2021). The different stressors were not highly intercorrelated for either social stress (r s ranging between -0.06 and 0.40) and work-related stress ($r = -0.09$). We therefore analyzed these different stressors as separate measures.

Responsiveness

Participants' perceptions of their partners' responsiveness were assessed using a 3-item version of the Perceived Partner Responsiveness Scale (Reis et al., 2017). This version has previously been used by Maisel and Gable (2009) and it has been shown to have high reliability in both previous studies ($\alpha = 0.91$) and the present study ($\alpha = 0.90$). It includes the following statements: "I feel that my partner understands me," "My partner values my abilities and opinions," and "My partner makes me feel cared for." Ratings were made on a scale ranging from 1 ("completely disagree") to 5 ("completely agree").

Socioeconomic status

All participants answered questions about possession of durable goods and educational level of the head of the household, which provides evidence about purchasing power and general situation of the households. Scores can range from 0 to 100 and each individual is classified into one of six socioeconomic strata (ABEP, 2018).

Statistical Analyses

First, ANOVAs (dimensional variables) and chi-square analyses (categorical variables) were conducted to compare the three groups (i.e., married, dating and single) with regard to background variables, social and work-related change, and mood. In the ANOVAs, age and sex were used as covariates. Effect sizes were calculated using Cohen's d (Cohen, 1992), with $d < 0.30$ indicating a small effect, $d < 0.50$ indicating a medium-sized effect and $d < 0.80$ indicating a large effect. Next, hierarchical regression analyses were used to investigate associations between COVID-19-related stressors and mood and the moderating effect of partner responsiveness. Child age and sex was entered in the first step, the main effects of COVID-19-related stressors and partner responsiveness in the second step, and the interaction between responsiveness and COVID-19-related stressors in the third step. The PROCESS module (Hayes & Rockwood, 2017) was used to investigate moderation effects, and separate analyses were conducted for each of the five COVID-19-related stressors. Separate analyses were also carried out for the dating and married group.

Results

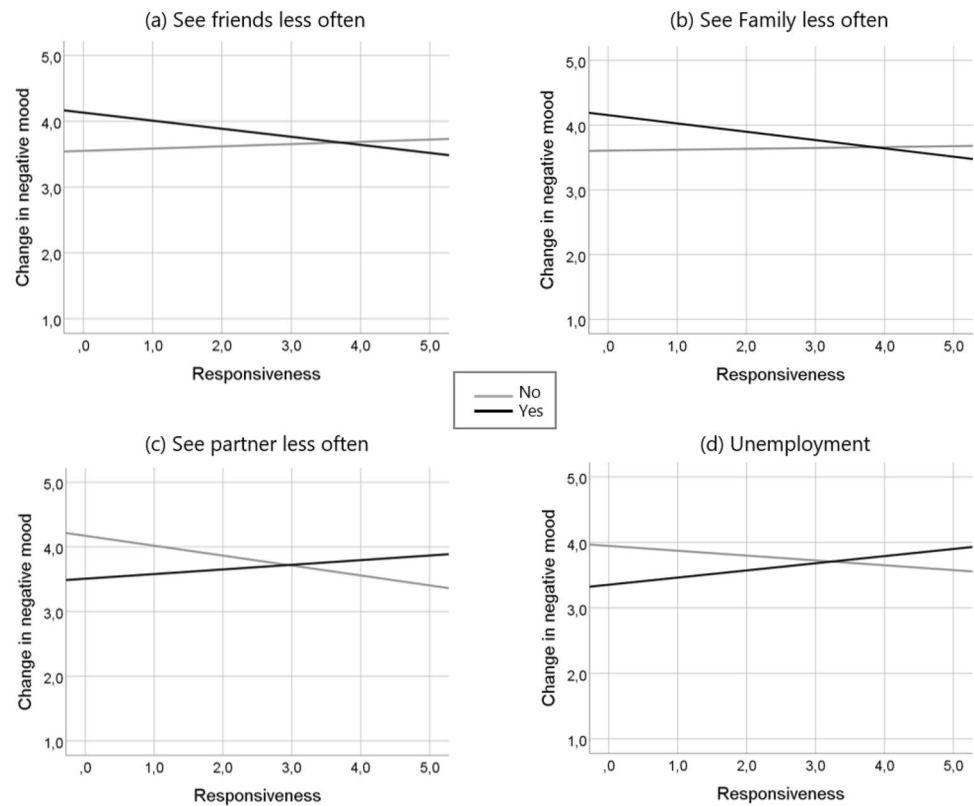
Regarding the negative changes in overall mood within the entire sample, a large proportion reported increased levels (i.e., a score of 4 or 5) of sadness (52.9%), anxiety (69.9%), problems with appetite (49.4%), sleeping problems (52.8%), anger (57.8%) and loneliness (47.1%) when comparing the current situation with the period prior to the pandemic. As shown in Table 1, there were significant group differences in all social stressors. For the item "seeing one's family less often", fewer individuals in the married group compared to the other two groups experienced this stressor. For the item "seeing friends less often," fewer individuals in the single group experienced this stressor compared to the dating group. For the item "using digital media more often as a social interaction tool", individuals in the single and dating groups increased their social media use more than the married group did. Concerning work-related stress, more individuals in the married group experienced increased workload compared to the single group, and more individuals in the dating group became unemployed due to the pandemic compared to individuals in the single group. The mean for perceived partner responsiveness was also higher in the dating group compared to the married group. Finally, the single and dating groups experienced a significantly larger increase in negative mood compared to the married group. However, it should be noted that all significant group differences were of small effect size (all d s < 0.20).

With regard to relations between COVID-19-related stressors and mood (Table 2), significant positive correlations were found with social media use for both the dating ($r = 0.11$, $p < 0.001$) and married group ($r = 0.07$, $p < 0.05$) and with seeing your partner less often for the dating group ($r = 0.21$, $p < 0.001$). Within the dating group, partner responsiveness moderated the relation between mood and seeing friends less often ($\beta = -0.06$, $p < 0.01$),

Table 2 Correlations between quality of the relationship (i.e., responsiveness and relationship satisfaction) and mood

| | Mood | |
|---------------------|---------|--------|
| | Married | Dating |
| Social stress | | |
| Friends | .028 | -.065 |
| Family | .036 | -.027 |
| Partner | - | .209** |
| Social Media | .073* | .108** |
| Work-related stress | | |
| Increased workload | .107** | .010 |
| Unemployment | .047 | .044 |

* $p < .05$, ** $p < .001$

Fig. 1 Graphs showing the four significant interaction effects

seeing family less often ($\beta = -0.05$, $p < 0.01$), seeing one's partner less often ($\beta = 0.07$, $p < 0.001$), and unemployment ($\beta = 0.06$, $p < 0.05$). More specifically, the results showed that individuals with a partner who was high in responsiveness showed the same change in negative mood regardless of whether that person saw friends (Fig. 1a) or family (Fig. 1b) less often. However, for individuals with a partner who was low in responsiveness, those who saw their friends or family less often showed a significantly higher negative change in mood compared to those who did not see friends or family less (Table 3).

Regarding seeing one's partner less often (Fig. 1c), this was associated with a greater increase in negative mood if the partner was high in responsiveness but with a positive outcome (i.e., smaller increase in negative mood) if the partner was low in responsiveness. For unemployment during the COVID-19 pandemic (Fig. 1d), the expected pattern was found for those with a partner who was high in responsiveness (i.e., greater negative increase in negative mood for those who entered unemployment compared to those who did not). However, for those with a partner who was low in responsiveness, becoming unemployed was associated with a smaller rather than greater increase in negative mood. The same moderating effects were not found in the married group (all β s < 0.02). In addition, partner responsiveness was not a significant moderator

for any of the relations between work-related stressors and mood in the married group (all β s < 0.03) or between social media and responsiveness in any of the groups (all β s < 0.03).

Discussion

The first aim of the present study was to examine whether there were group differences in social and work-related stressors due to the Covid-19 pandemic and changes in negative mood as a function of individuals' marital status. The results showed that a relatively large proportion of the sample reported increased levels of negative mood (i.e., increased sadness, anxiety, loneliness, problems with appetite, anger, and sleep problems). This is in line with previous research showing that many people have experienced increased levels of mental health problems during the COVID-19 pandemic, such as more depression and anxiety (Santabábara et al., 2021; Xiong et al., 2020), and these types of symptoms have been shown to be associated with loneliness due to social-distancing measures (Horesh et al., 2020; Palgi et al., 2020).

Based on previous research showing that being in a romantic relationship could buffer against negative effects on mental health during times of difficulty (Pluut et al.,

Table 3 Results of the regression analyses

| | Mood: married | | Mood: dating | |
|--|---------------|--------------|--------------|--------------|
| | β | ΔR^2 | β | ΔR^2 |
| Step 1 | | | | |
| Age | .01 | .01 | -.13*** | .03 |
| Sex | .02*** | .01 | .12** | .03 |
| Step 2A Seeing friends less often | .05 | .10 | -.05 | .01 |
| Responsiveness | -.32*** | | -.11** | |
| Step 2B Seeing family less often | .07* | .10 | -.02 | .01 |
| Responsiveness | -.32*** | | -.11** | |
| Step 2C Seeing partner less often | - | - | .17*** | .04 |
| Responsiveness | - | | -.10** | |
| Step 2D Social media more often | .06* | .10 | .11*** | .02 |
| Responsiveness | -.32*** | | -.12*** | |
| Step 2E Work-related stress – Increased workload | .09** | .11 | .02 | .01 |
| Responsiveness | -.32*** | | -.11** | |
| Step 2F Work-related stress – Unemployment | .02 | .10 | .02 | .01 |
| Responsiveness | -.32*** | | -.11** | |
| Step 3 | | | | |
| A. Friends x Responsiveness | -.00 | .00 | -.06** | .01 |
| B. Family x Responsiveness | .00 | .00 | -.05** | .01 |
| C. Partner x Responsiveness | - | - | .07*** | .01 |
| D. Social Media x Responsiveness | .01 | .00 | .03 | .00 |
| E. Increased workload x Responsiveness | -.01 | .00 | .01 | .00 |
| F. Unemployment x Responsiveness | .02 | .00 | .06* | .00 |

* $p < .05$, ** $p < .01$, *** $p < .001$

2018; Dooley et al., 2018; Fredman et al., 2010), it could be hypothesized that effects on mental health would be the greatest for individuals who are single. However, the present results indicated that it is also important to make a distinction between dating and married/cohabitating couples, as it was only married/cohabitating couples who differed significantly from singles with regard to experiencing an increase in negative mood. This finding is in line with results from a few previous studies conducted during the COVID-19 pandemic, which found that being married/cohabitating predicted better mental health outcomes during the lockdown (Gualano et al., 2020; Stanton et al., 2020), while being in a relationship but not cohabitating was a risk factor for higher anxiety, stress and depression (Rodríguez-Rey et al., 2020), as well as poorer life satisfaction (Himawan et al., 2021). Due to the social isolation that was enforced during the pandemic, being in a relationship but not cohabitating has been similar to having a long-distance relationship (Rodríguez-Rey et al., 2020) and we know from previous research that having a long-distance relationship is related to greater stress (Du Bois et al., 2016).

The second aim was to investigate whether there was an association between COVID-19-related stressors and changes in negative mood and whether perceived partner responsiveness

would attenuate this association. To our knowledge, only one previous study has investigated the role of partner responsiveness during the COVID-19 pandemic, and this study showed that high partner responsiveness attenuated the associations between COVID-19-related stressors and relationship quality (Balzarini et al., 2020). Our results extend these findings by showing that partner responsiveness can also attenuate the association between stress and negative mood.

For the items “seeing friends less often” or “seeing family less often”, it was primarily among individuals with low partner responsiveness that these two social stressors resulted in a great change in negative mood. For individuals with a partner with low responsiveness, not seeing one’s partner as often as before was not a stressor at all, as these individuals reported a smaller increase in negative mood compare to those who saw their partner as often as before. Thus, our results suggest that being close to one’s partner during the pandemic could lower the negative impact of social stressors, as long as one feels understood, validated, and cared for by that partner. If not, closeness could even have the opposite effect.

Interestingly, significant interactions were only found for the dating group and not for those who were married/cohabitating. For the item “seeing one’s partner less often”, it was not surprising that this effect was only for

those who were dating, as very few (2%) of the married individuals saw their partner less often. For the other variables, the results are not as easily explained. One possible explanation is that individuals who were dating experienced a great increase in negative mood during the pandemic compared to the married group and, therefore, having a responsive partner was of more importance to this group.

Another issue that needs to be discussed is the significant moderation effect of partner responsiveness on the association between unemployment and negative mood. This moderation effect was in the opposite direction to that expected, as high responsiveness was related to a greater, not smaller, increase in negative mood for those who entered unemployment during the pandemic. However, the expected pattern (i.e., high responsiveness being related to a smaller increase in negative mood) was found for those who did not enter unemployment. We believe that the unexpected pattern of results found among those who entered unemployment might be related to the paradoxical effect of social support. A few previous studies have shown that receiving support is associated with an increase in negative mood, especially if it is unreciprocated (Liang et al., 2001; Maisel & Gable, 2009). Being unemployed is considered a major source of stress, which has been shown to be associated with negative mental health outcomes (for review, see Paul & Moser, 2009). More specifically, losing one's employment has been shown to have important negative effect on for example self-esteem and personal identity (Achdut & Refaeli, 2020; Clark et al., 2012). Although some research has shown that perceived responsiveness can moderate this effect (Maisel & Gable, 2009), it is possible that the burden of losing one's job due to the pandemic, combined with receiving a high level of support, could have a negative effect on the individual's self-efficacy (Gleason et al., 2008) that exceeds the positive effects of responsiveness. Another possible explanation is the fact that the unemployed group was very small (6% of the sample), which could have resulted in spurious findings.

Conclusions and Future Directions

Overall, our study provides support for the idea that perceived partner responsiveness can attenuate the effects of stress and helps explain which aspects may underlie the protective potential of responsiveness in a highly stressful context. However, our results should be considered along with some potential limitations. First, the present study is cross-sectional in nature, which means that neither causality nor the direction of the effects can be determined. It can also be considered a limitation that we used unstandardized instruments to evaluate mood, as well as social and work-related changes. However, as

the COVID-19 pandemic is a unique situation, it was not possible to find instruments that both captured the stressors of most importance for the pandemic and which asked about change over time. It was therefore necessary to create questions specifically adapted to the research questions of the present study. Finally, the survey was conducted online, and this type of data sampling often results in an underrepresentation of men (only 25–35% in our sample) and individuals with low education levels (47–81% have a university education). Thus, our sample was not totally representative of the entire Brazilian adult population. Nonetheless, this probably did not have a great effect on our findings, as the main aim was not to investigate the prevalence of problem behaviors but rather differences between groups and associations between variables.

In conclusion, our study contributes new insights by showing that effects on negative mood during the COVID-19 pandemic are dependent on relationship type and perceived partner responsiveness. However, in our view, it is important for future research to investigate other relationship factors, such as intimate partner violence and coping strategies, as well as to what extent single individuals chose not to have a partner since this may impact mental health outcomes (Adamczyk, 2017). Furthermore, it would be interesting also to examine more long-term effects of perceived partner responsiveness on negative mood and other mental health problems related to the COVID-19 pandemic.

Author Contributions All authors contributed to the study conception and design. Material preparation and data collection and analysis were performed by Lorryne Stephane Soares. The first draft of the manuscript was written by Lorryne Stephane Soares and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data Availability Not applicable.

Code Availability Not applicable.

Declarations

Conflicts of Interest/Competing Interests The authors declare that they have no conflict of interest.

Ethics Approval The study was approved by the local ethics board (registry: CAAE 59792816.8.0000.5134). The study is in accordance with the Declaration of Helsinki.

Consent to Participate All the volunteers consented for participation.

Consent for Publication Not applicable.

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4.3. Artigo 3

Soares, L. S., Paula, J. J. D., Thorell, L. B. & Miranda, D. M. D. (2022).

One year into the pandemic: A longitudinal perspective on the impact of romantic relationships on mental health outcomes during the COVID-19 pandemic

To be submitted.

INTRODUCTION

The COVID-19 pandemic has generated extensive transformations across the globe, including social, economic, and behavioral changes. One of the most prominent of these changes was caused by social isolation, a measure taken by the governments to mitigate the spread of the virus. People were asked to stay at home and avoid interpersonal contact, which has resulted in strict social isolation, disrupting people's daily routine, maintaining them whether apart from family and friends, or being confined to them 24/7.

It is widely expected to have more depression and anxiety symptoms during the course of the COVID-19 pandemic (Santabárbara et al. 2020; for a review, see Xiong et al, 2020). Indeed, the results of a meta-analysis point to an increase in mental health symptoms, especially in the early stages of the pandemic (Robinson et al., 2022). People living in small spaces without open-air spaces and feeling loneliness or lack of social support were related to an increased impact on mental health (Santabárbara et al., 2020), and loneliness, due to social-distancing measures, was associated with a greater risk for Anxiety and Depression (Horesh et al, 2020; Palgi et al., 2020).

Previous work had attested that major stressful or traumatic life events (e.g. financial strain, experiencing a natural disaster or war), as well as minor and everyday stressful situations (e.g. family or work-related stress), could be harmful to intimate relationships since it is associated with lower relationship satisfaction (Weinberg et al, 2018; Merz et al, 2014; Falconier & Epstein, 2010; Klaric et al, 2011; for a review, see Randall & Bodenmann, 2017). Studies conducted during the COVID-19 pandemic reported a decline in romantic relationships functioning, with couples describing negative feelings toward interacting with partners, more conflicts and relational distress (Luetke et al., 2020; Li et al., 2020; Goodboy et al., 2021; for a review, see Estlein, Gewirtz-Meydan e Opuda, 2021).

Nevertheless, in a previous study, being married/cohabiting predicted better mental health outcomes during the lockdown, and was associated with lower levels of stress and better mood when compared with the single ones (Gualano et al., 2020; Stanton et al., 2020; Soares et al., 2021), supporting the idea that social support could act as a stress buffer (Kowal et al., 2020). Moreover, we found that perceiving the partner as more responsive could mitigate the associations between covid-related stressors and changes in the negative mood but only for people who were dating (Soares et al., 2021).

Therefore, as an extension of this previous work (Soares et al., 2021), this study aimed to explore and understand the dynamics of romantic relationships one-year into the pandemic and whether and how

they could impact individuals' mental health after this period. More specifically, we sought to investigate the following: (1) examine if there are group differences with regard to mental health (mood and symptoms of anxiety and depression) and relationship satisfaction within one year and (2) if partner perceived responsiveness would influence the effect of covid-related stress and mental health.

METHODS

Participants and procedures

This longitudinal study was conducted in two phases (T1 and T2). A total of 2400 Brazilian adults took part in the first wave between June and September 2020. Participants were recruited via the Internet, using a virtual sampling strategy (banner ad posted on the researchers' social media), and through articles published in local newspapers and radio programs (a more detailed description can be seen in Soares et al., 2021).

One year later (T2), all participants were contacted via email and invited to answer questionnaires and scales through an online platform developed in *Google forms*. The follow-up participation rate from T1 to T2 was 18% (n=415, 74.8% Female). Participants were assigned to three different groups: 1) single group (n=91), who were not in a romantic relationship, 2) dating group (n=96), who were in a relationship but did not live together, and 3) married group (n=228), who were married or cohabiting.

Measures

Mental Health

Participants' symptoms of depression and anxiety were assessed by the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). To assess participants' current emotional state (i.e., previous 2 weeks), respondents were asked to rate six statements (Table 1) on a scale ranging from 1 ("much less than before") to 5 ("much more than before"). As shown in our previous study, the questionnaire showed good internal consistency ($\alpha=.80$; Soares et al., 2021).

Covid-related stressors

To assess Covid-related stressors, participants were asked to indicate (yes/no) whether they had experienced changes due to the pandemic with regard to their social and professional habits. The different stressors were not highly intercorrelated for either social stress (r s ranging between $-.06$ and $.40$) or work-related stress ($r = -.09$).

Responsiveness

Participants' perceptions of their partners' responsiveness were assessed using a 3-item version of the Perceived Partner Responsiveness Scale (Reis et al., 2017). This version has previously been used by Soares et al. (2021) and Maisel et al. (2009), and it has been shown to have high reliability in both previous studies ($\alpha=.90$ and $\alpha=.91$, respectively). Ratings were made on a scale ranging from 1 ("completely disagree") to 5 ("completely agree").

Relationship satisfaction

The Relationship Assessment Scale (RAS; $\alpha=.86$; Hendrick, 1988), a 7-item measure, was used to assess general relationship satisfaction. Responses are on a 5-point Likert scale, with higher scores indicating greater relationship satisfaction.

Socioeconomic status

All participants answered questions about possession of durable goods and educational level of the head of the household, which provides evidence about purchasing power and general situation of the households. Scores can range from 0 to 100 and each individual is classified into one of six socioeconomic strata (ABEP, 2018).

Statistical analyses

All analyses were performed using SPSS, version 25.0. First, McNemar analyses were conducted to compare the frequency of social and work-related changes, as well as the marital status distribution in T1 and T2. A two-way mixed ANOVA was used to investigate if there were any changes in responsiveness, relationship satisfaction, mood, and symptoms of anxiety and depression between T1 and T2, as well as if there was an effect of interaction between time (T1 and T2) and marital status (i.e., married, dating and single).

RESULTS

After one year, we observed an increase in all covid-related stressors (Table 2), with participants reporting seeing friends ($X^2=25.075$; $p<.001$) and family ($X^2=11.852$; $p=.001$) less often, as well as an increase in the workload ($X^2=12$; $p=.001$) and unemployment. We also found significant changes in marital status, more specifically a decrease in the frequency of people who are dating (Fig. 1; $X^2=5.47$; $p=.019$).

Regarding the responsiveness, there was a significant effect of time (Fig 2A; $F(1,316)=6.23$, $p=.013$, $\eta^2=.019$), with participants perceiving their partners as more responsive at T2. However, there was no significant effect of marital status ($p=.321$) or the interaction between them ($p=.253$). Relationship satisfaction also increased significantly (Fig 2B; $F(1,321)=122.38$, $p<.001$, $\eta^2=.276$), with both married and dating groups reporting a greater satisfaction at T2.

With regard to mental health, there was a significant main effect of time ($F(1,397)=64.47$, $p<.001$, $\eta^2=0.140$) in negative changes in the overall mood, with participants reporting an improvement in T2 when compared with T1. There was also a significant main effect of marital status ($F(2,397)=5.68$, $p=.004$, $\eta^2=.028$), with the married group experiencing less negative mood compared to the single and the dating groups, and a significant interaction between time and marital status (Fig 2C; $F(2,397)=6.52$, $p=.002$, $\eta^2=.032$). Participants who were married or cohabiting reported greater improvement after one year, while single or dating participants exhibited a more discrete improvement over time. When we controlled for responsiveness in T1 and T2, however, this effect loses its significance. Regarding the symptoms of Anxiety, although there's no significant effect of time ($p>.05$), we found a significant interaction between time and marital status (Fig 2D; $F(2,412)=3.18$, $p=.043$, $\eta^2=.015$), with the single and dating groups reporting higher symptoms of anxiety over time when compared with the married ones. Moreover, with regard to the symptoms of depression, there was a significant effect of marital status (Fig 2E; $F(2,412)=3.93$, $p=.02$, $\eta^2=.019$), with married individuals reporting fewer symptoms of depression, when compared with the singles.

DISCUSSION

This study aimed to explore and understand the dynamics of romantic relationships one year into the Coronavirus pandemic in Brazil and whether and how they could impact individuals' mental health during this period. Our results showed that one year after the first assessment, participants reported an increase in all covid-related stressors, suggesting that the extension of the pandemic and its restrictions might have escalated the levels of stress that people were experiencing. Nevertheless, in line with other studies (Hawes et al, 2020; Pierce et al, 2021; Daly e Robinson, 2021), our results pointed to an improvement in the changes in negative mood. Taken together, these results suggest that people may have adapted to the context. Recovery after a traumatic event is one of the trajectories people usually demonstrate, in which they gradually return to pre-event levels of distress (Bonanno, 2004), so it would be expected to see a decrease in mental health problems. After one year, the "new normal" life is a way to deal with and adapt to the idea that the virus will be with us for a long time (Corpuz, 2021). Because of that, governments have advertised recommendations regarding potential mental health impacts, encouraging people to adjust their routine to incorporate more positive and healthy habits (Hou et al., 2021). At this stage, people might have started to see a way to reestablish health, economies, and society (Kasai, 2020).

Based on previous research that indicates that stressful or traumatic events could be associated with poorer marital quality (Weinberg et al, 2018; Merz et al, 2014; Falconier & Epstein, 2010; Klaric et al, 2011; for a review, see Randall & Bodenmann, 2017), it would be reasonable to expect worse relationship satisfaction during the pandemic. Indeed, studies conducted in early stages of the Coronavirus outbreak have shown an association between higher levels of stress and relationship decline

for intimate partnerships as well as between social isolation, stress, more conflicts, and poorer relationship satisfaction (Goodwin et al., 2020; Balzarini et al., 2020). However, our results suggest an improvement in both relationship evaluation and perceived responsiveness, suggesting that couples are more satisfied one year later than they were in the first stages of the pandemic. It is possible that spending time together, which was facilitated by the home office, for example, and providing emotional support in a context of fear and uncertainty, might have had a positive impact on relationship quality (Estlein, Gewirtz-Meydan e Opuda, 2021). However, it is important to point that this may vary depending on broader contexts of their lives and routine (e.g., economic strain, childcare responsibilities, and working arrangements), and, as our sample is not entirely representative, this may not be true for couples with other dynamics (Pietromonaco e Overall, 2020).

The quality of relationships can amplify or minimize the effects of stress (Conradi et al. 2021), and it is associated with mental health outcomes like anxiety and depression (Goldfarb & Trudel, 2019). Earlier studies already suggested marriage as an important protective factor in stressful contexts (Bruce et al., 2019; Lauder et al., 2004; Shiovitz-Ezra & Leitsch, 2010). Indeed, our previous results indicated that people who were single or dating during the COVID-19 pandemic experienced a larger increase in the negative mood when compared with the married/cohabiting ones (Soares et al., 2021). These results were supported by other studies conducted at the time, which found that being married/cohabiting predicted better mental health outcomes during the lockdown (for a review, see Estlein, Gewirtz-Meydan e Opuda, 2021). Corroborating those findings, the current results still point to an effect of marital status on both negative mood and symptoms of anxiety, showing that married/cohabiting individuals exhibit greater improvement in mental health outcomes one year into the pandemic.

Although important insights were made based on our results, they should be considered along with some potential limitations. As in our previous study (Soares et al., 2021), we used unstandardized instruments to evaluate mood, as well as social and work-related changes due to the necessity to adapt the questions to the specific situation. Although reliable, a systematic assessment of its validity is still necessary. Moreover, the survey is not representative of the entire Brazilian adult population, since it's predominantly female (men represent only 25% of our sample) and most individuals have higher education (69.4% have a university education).

At the beginning of 2020, the COVID-19 pandemic spread across the globe and disrupted everyone's life. It leaves behind distress, sorrow, school closures, anxiety and depressive disorders, economic burden, and deaths reaching billions directly and indirectly. Our study indicated through a longitudinal perspective that being married/cohabiting in times of stress can be protective, contributing to better mental health outcomes. Moreover, the time spent together during the pandemic might have positively affected relationship quality. Identifying factors that could help people to pass through such stressful and difficult times and find a way to strengthen our closest connections might be helpful to think of practical strategies when facing crises and challenging situations.

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Table 1. Questionnaires' statements regarding the assessment of social and work-related stressors, mood and partner perceived responsiveness.

| | Items |
|----------------------------------|--|
| Social-related stressors | 1) "I've been seeing my friends less often," 2) "I've been seeing my family less often," 3) "I've been seeing my partner less often," and 4) "I've been using digital media more often as a social interaction tool." |
| Work-related stressors | 1) "My workload has increased," and 2) "I lost my job". |
| Mood | "I feel sad," "I feel anxious," "I have a poor appetite," "I have sleeping problems (i.e., insomnia, oversleep)," "I feel angry," and "I feel lonely." |
| Partner Perceived Responsiveness | "I feel that my partner understands me," "My partner values my abilities and opinions," and "My partner makes me feel cared for." |

Table 2. Participants' description regarding social and work-related changes, mental health, responsiveness and relationship satisfaction in June-Sep 2020 (T1) and Jun-Sep 2021 (T2)

| | T1 | | | T2 | | |
|-------------------------------|---------------------|---------------------|-----------------------|---------------------|---------------------|-----------------------|
| | Single (1, N=72) | Dating (2, N=13) | Married (3, N=202) | Single (1, N=91) | Dating (2, N=96) | Married (3, N=228) |
| Age | 29.9 (7.8) | 28.9 (7.6) | 36.43 (8.94) | 30.47 (8.94) | 28.06 (6.80) | 35.61 (8.88) |
| Sex (% Males) | 29 (40.3%) | 26 (18.4%) | 50 (24.5%) | 35 (38.5%) | 15 (15.6%) | 55 (24.1%) |
| Education | | | | | | |
| Primary | 0 (0%) | 1 (0.7%) | 0 (0%) | 0 (0%) | 1 (1%) | 0 (0%) |
| Secondary | 35 (48.6%) | 55 (39%) | 35 (17.3%) | 42 (46.2%) | 42 (43.8%) | 41 (18%) |
| University | 36 (50%) | 85 (60.3%) | 167 (82.7%) | 48 (52.7%) | 53 (55.2%) | 187 (82%) |
| SES score | 27.57 (10.1) | 27.04 (9.18) | 25.50 (9.5) | 27.37 (9.91) | 26.94 (8.60) | 26.02 (9.70) |
| Social change | | | | | | |
| See family less often | 36 (51.4%) | 65 (47.1%) | 135 (70.3%) | 50 (56.2%) | 66 (68.8%) | 167 (73.9%) |
| See friends less often | 45 (64.3%) | 87 (63%) | 133 (69.3%) | 65 (73%) | 79 (82.3%) | 187 (82.7%) |
| See partner less often | - | 63 (45.7%) | 5 (2.6%) | - | 32 (33.3%) | 7 (3.1%) |
| Use social media more often | 54 (77.1%) | 96 (69.6%) | 110 (57.3%) | 69 (77.5%) | 64 (66.7%) | 122 (54%) |
| Work-related change | | | | | | |
| Increased workload | 19 (27.1%) | 50 (36.2%) | 65 (33.9%) | 32 (36%) | 47 (49%) | 98 (43.4%) |
| Unemployed | 2 (2.9%) | 13 (9.4%) | 6 (3.1%) | 9 (9.9%) | 11 (11.5%) | 18 (7.9%) |
| Mental health | | | | | | |
| Mood | 3.84 (0.82) | 3.60 (0.71) | 3.41 (0.73) | 3.53 (1.13) | 3.22 (0.78) | 3.11 (0.91) |
| Anxiety - HADS | 9.40 (4.63) | 9.28 (4.37) | 8.67 (4.50) | 10.20 (4.29) | 9.46 (3.74) | 8.09 (4.46) |
| Depression - HADS | 7.17 (3.95) | 6.99 (3.99) | 6.54 (3.66) | 7.71 (3.96) | 7.31 (4.10) | 6.51 (4.06) |
| Relationship Evaluation (RAS) | - | 3.70 (0.57) | 3.54 (0.62) | - | 4.12 (0.81) | 4.1 (0.80) |
| Responsiveness | - | 4.21 (0.89) | 3.88 (1.08) | - | 4.24 (0.87) | 4.07 (0.92) |

Fig. 1 Marital status distribution in June-Sep 2020 (T1) and Jun-Sep 2021 (T2)

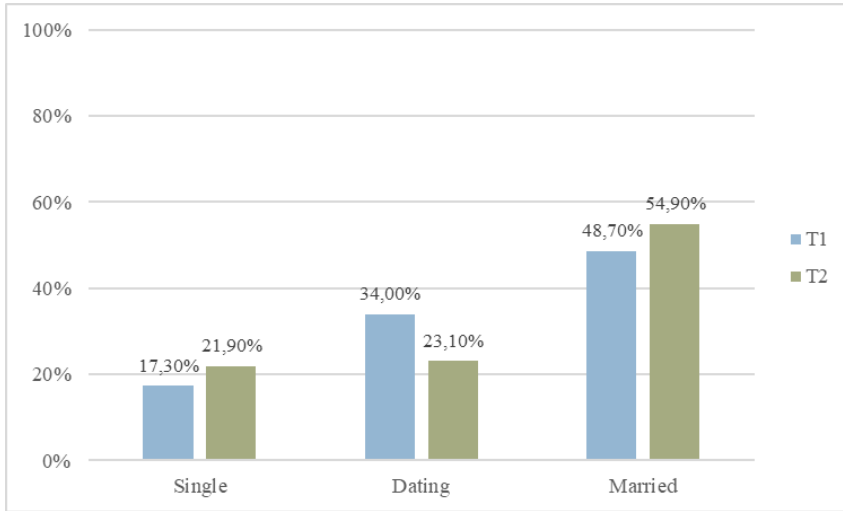
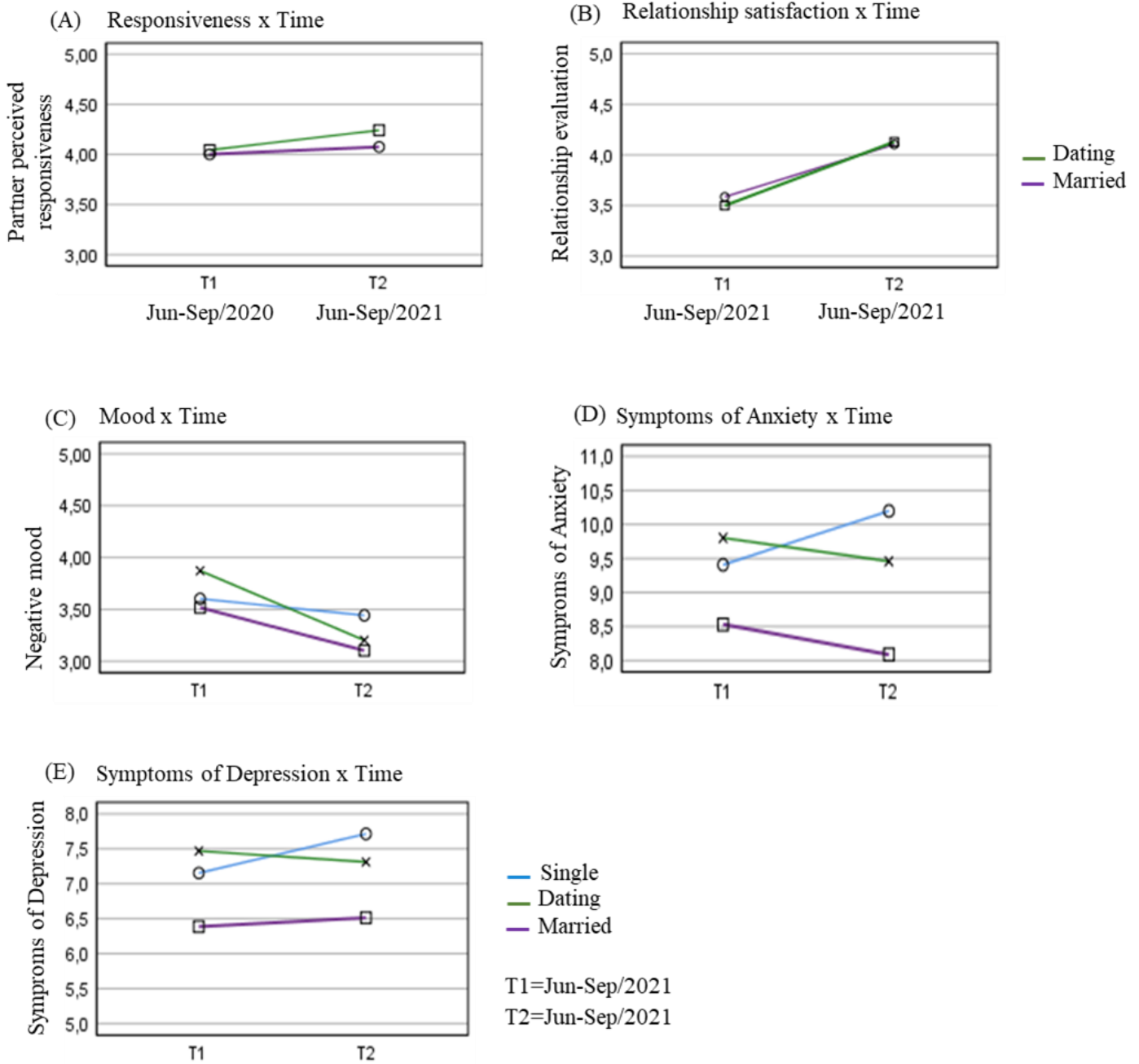


Fig. 2 Graphs showing the effects of time, marital status and its interaction in responsiveness, relationship satisfaction, mood and symptoms of anxiety and depression



*(A) and (B) analyses were made without the single group. (D) and (E) symptoms of anxiety and depression measured by HADS.

6. CONCLUSÃO

O trabalho aqui proposto teve como objetivo a investigação das associações entre amor apaixonado, relacionamentos românticos e saúde mental, além de buscar melhor compreender a relação dos transtornos do neurodesenvolvimento com o desenvolvimento de relações afetivas, levando em consideração os mecanismos associados.

No estudo 1, encontramos que o estado civil variava de acordo com os sintomas dos Transtornos do Neurodesenvolvimento, de forma que a taxa de indivíduos que nunca havia se casado foi maior entre aqueles com traços TEA, que também apresentavam menor taxa de pessoas casadas, enquanto no grupo de indivíduos com sintomas mais elevados de TDAH encontramos maior taxa de divórcio. Além disso, encontramos níveis mais elevados na intensidade de amor apaixonado entre aqueles com sintomas de TDAH e também no grupo com sintomas elevados dos dois transtornos (TEA+TDAH). O grupo com traços TEA não diferiu dos controles na intensidade de amor, contrariando o senso comum que, muitas vezes, os classificam como frios e sem sentimento (Koller, 2000; Hénault, 2006).

No estudo 2, nossos resultados apontaram para um efeito positivo dos relacionamentos no humor dos participantes durante a pandemia de COVID-19, de forma que pessoas casadas e que moravam juntas apresentaram níveis menores de alterações negativas no humor durante esse período. Além disso, encontramos que responsividade, ou seja, a habilidade de responder adequadamente às necessidades do parceiro, moderou a relação entre stress e saúde mental, mas apenas para casais que estavam namorando. Esses resultados reforçam a importância dos diferentes tipos de relacionamento e de mecanismos associados que podem contribuir para a saúde mental e bem-estar em contextos estressantes.

Os resultados do estudo 3 apontam para uma piora dos níveis de estresse relacionados a mudanças provocadas pela pandemia. Apesar disso, os participantes reportam maior satisfação com o relacionamento, bem como na responsividade percebida. Além disso, observamos uma melhora no humor dos participantes a depender do estado civil, de forma que indivíduos casados ou que moravam juntos apresentaram melhora do humor mais pronunciada, quando comparados a indivíduos solteiros e que namoravam.

Tomados em conjunto, os resultados dos nossos estudos reforçam a relevância dos relacionamentos afetivos no bem-estar geral e saúde mental dos adultos e a importância de se melhor investigar quais aspectos estariam associados ao padrão de relacionamentos românticos de pessoas com transtornos do neurodesenvolvimento. Conhecer de perto as particularidades atreladas ao funcionamento desses indivíduos poderia ajudar a esclarecer e combater estereótipos com impacto negativo no estabelecimento de relacionamentos amorosos dentro desses grupos. Além disso, identificar fatores que poderiam atuar como facilitadores, bem como encontrar maneiras de criar e fortalecer conexões mais próximas e profundas pode ser útil para pensar em estratégias práticas ao enfrentar crises e situações desafiadoras.

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