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Perspectivas das Estratégias de *Coping* em Usuários de Álcool

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You cannot hope to build a better world without improving the individuals.

Marie Curie

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Abreviaturas

CBI-20	Inventário de Comportamento de *Coping* versão breve para população brasileira.
CBI	Inventário de Comportamento de *Coping*
IDHEA	Habilidades de Enfrentamento Antecipatório para a Abstinência de Álcool e Outras Droga
IBM	Intervenção Breve Motivacional
OMS	Organização Mundial de Saúde
OPAS	Organização Pan-Americana de Saúde
IDS	*Inventory of Drinking Situations*
SCQ	*Situational Confidence Questionnaire*
SSEQ	Smoking Self-Efficacy Questionnaire
AASE	*Alcohol Abstinence Self-Efficacy Scale*
NGSE	*New General Self-Efficacy*
WCQ	*Ways of Coping Questionnaire*
CSQ	*Coping Strategies Questionnaire*
CISS	*Coping Inventory for Stressful Situations*
IMC	*Inventory Multidimensional de Coping*
R-COPE	*Religious-cope*
CRI	*Coping Responses Inventory*
LECI	*Life Events and Coping Inventory*
CHIP	*Coping Health Inventory*
ACSI	*Athletic Coping Skills Inventory*

Resumo

Pesquisas relacionadas ao consumo de álcool têm mudado seu foco na avaliação de quais tratamentos são eficazes para se concentrar na compreensão de como os mecanismos pelos quais ocorrem mudanças bem-sucedidas ocorrem. Este estudo objetivou avaliar as estratégias de *coping* em usuários de álcool atendidos em uma central de aconselhamento telefônico (Serviço Nacional de Informações e Orientações sobre a Prevenção do Uso de Drogas - VIVAVOZ), bem como usuários em tratamento ambulatorial na Cruz Vermelha e comunidades terapêuticas. A partir disso, foram produzidos 3 artigos:

1- *Alcohol User Profile after a Brief Motivational Intervention in Telephone Follow-up: Evidence Based on Coping Strategies,* este estudo verificou os efeitos da IBM frente ao *coping* e determinou as diferenças entre os perfis de usuários de álcool atendidos em uma central de aconselhamento telefônico acompanhados por 6 meses. O estudo empregou o CBI como uma medida dependente. Uma amostra de 120 indivíduos foram aleatoriamente designados para 2 grupos: Intervenção (IBM) ou controle (intervenção mínima). A análise dos perfis dos participantes resultou em 3 diferentes grupos: i) Participantes que pertenciam ao grupo controle e não pararam de beber, ii) Participantes que estavam no grupo controle e pararam de beber, e iii) participantes no grupo experimental em que a grande maioria parou de beber. Os resultados descrevem um enfrentamento mais igualmente distribuído nos diferentes fatores para os participantes após a intervenção e algumas características de perfil relacionado ao *coping* e ao desfecho de mudança de comportamento diferentes dentro do grupo controle.

2- *CBI-20: Psychometric properties for the Coping Behaviours Inventory for alcohol abuse in Brazil,* examinou a estrutura de fatores do Inventário de Comportamento de *Coping* (CBI) e testou sua invariância em diferentes grupos. Para isso, foram realizados: estudo I (670 participantes) para análise fatorial exploratória e estudo II (232 participantes face a face e 221 participantes via telefone) para análise fatorial confirmatória e análise multigrupo. Os resultados confirmam a solução de 4 fatores com um modelo revisado e remoção de alguns itens. Esta nova versão apresentou melhores índices do que as versões anteriores. Além disso, a nova versão mostrou validade convergente com o questionário Habilidades de Enfrentamento Antecipatório para a Abstinência de Álcool e outras Drogas (IDHEA). Finalmente, a versão brasileira da CBI não mostrou diferenças entre o aconselhamento do telefone e os participantes presenciais em um nível métrico após uma análise multigrupo.

3- *"Brief Motivational Intervention, Telehealth and Strategies Coping: the new health Technologies,* o trabalho propôs um modelo baseado na relação entre a IBM por telefone, autoeficácia, estratégias de *coping* e desfecho(parou/não parou). Participaram do estudo 173 usuários de álcool em acompanhamento por 6 meses em um serviço de telessaúde. O estudo compreendeu um ensaio clínico randomizado, o que permitiu atribuir aleatoriamente os sujeitos da amostra aos grupos controle (Intervenção Mínima) (61, 3%) ou IBM (Intervenção Breve Motivacional) (38,7%). Para examinar as relações entre a IBM, autoeficácia, estratégias de enfrentamento e desfecho, foi utilizado método do modelo de equações estruturais (SEM). Os dados sustentam a afirmação de que, certamente, os indivíduos que foram aconselhados pela IBM tiveram uma melhor autoeficácia

e resultado, e indiretamente também se beneficiaram de um aumento na frequência de uso de estratégias de enfrentamento.

A presente pesquisa propôs aprofundar e ampliar o conhecimento em resultados benéficos para o tratamento do alcoolista. Dessa forma, a percepção do perfil dos participantes, conhecimentos relacionados aos comportamentos subjacentes às estratégias de enfrentamento, a reformulação de uma ferramenta de avaliação efetiva que demonstre a qualidade de sua aplicabilidade com diferentes grupos, e um modelo, que se correlaciona com alguns mecanismos envolvidos no resultado positivo no tratamento nesta população, foi proposto. Esses resultados podem esclarecer as ferramentas emergentes e proporcionar um apoio baseado em evidências na aplicabilidade clínica.

Palavras-Chaves: Comportamento de Enfrentamento, alcoolismo, aconselhamento

Abstract

Research on topics related to alcohol consumption has changed its focus from assessing which treatments are effective to focusing on understanding how the mechanisms by which occur successful changes happen. This study aimed to evaluate *coping* strategies in alcohol users in follow-up at a telephone counseling health service (National Service of Information and Guidelines on Drug Use Prevention - VIVAVOZ) as well as users in outpatient treatment at the Brazilian Red Cross and therapeutic communities. Thus, this thesis allowed the production of 3 articles:

1- Alcohol User Profile after a Brief Motivational Intervention in Telephone Follow-up: Evidence Based on Coping Strategies, this study verified the effects of IBM versus coping strategies and determined the differences between the profiles of alcohol users at a telephone counseling health service accompanied by 6 months. The study used the Coping Behavior Inventory (CBI) as a dependent measure. A sample of 120 participants were randomly assigned to 2 groups: Intervention (IBM) or control (minimal intervention). The analysis of the participants' profiles resulted in 3 different groups: i) Participants who belonged to the control group and did not stop drinking; ii) Participants who belonged to the control group and stopped drinking; and iii) Participants in the experimental group where the vast majority stopped drinking. The results depicted a more homogeneous coping pattern for those participants after intervention and some unusual profile features among the control group.

2- CBI-20: Psychometric properties for the Coping Behaviours Inventory for alcohol abuse in Brazil, examined the factor structure of the Coping Behavior Inventory (CBI) and tested its invariance in different groups. Were carried out: study I (670 participants) for factorial exploratory analysis and study II (232 participants face-to-face and 221 participants via telephone) for confirmatory factor analysis and multi-group analysis.The study demonstrated that there was confirmation of the 4 factor solution with a revised model for the removal of some items. This new version presented better indexes than the previous. In addition, the new version showed convergent validity with the IDHEA questionnaire. Finally, the Brazilian version of CBI showed no differences between telephone counseling and face-to-face attendance at a metric level after a multi-group analysis.

3- Brief Motivational Intervention, Telehealth and Strategies Coping: the new health technologies, the paper proposed a model based on the relationship between telephone IBM, self efficacy, coping strategies and results. A total of 173 alcohol users were followed up for 6 months on a telehealth service. The study comprised a randomized clinical trial, which allowed the subjects to be randomly assigned to the control (61.3%) or BMI (38.7%) groups. To examine the relationships between BMI, self-efficacy, outcomes and coping strategies, we used the structural equations model (SEM) method.The data support the assertion that individuals who received counseling by BMI were certainly more self-efficacious and successful, and indirectly also benefited from an increase in the frequency of use of coping strategies.

The current research proposed to deepen and extend knowledge in beneficial results for alcohol abuser treatments. In this way, the perception of participants profile, knowledge related to behaviors underlying coping strategies, the reformulation of an effective assessment tool which demonstrates the quality of its applicability in different groups, and a model, that correlates with some mechanisms involved in the positive outcome in the treatment in this population, were proposed. These results might shed light in emerging tools and supporting evidence based for later clinical applicability.

Keywords: coping behaviors, alcoholism, counseling

1. **Introdução**

1.1 Perspectivas do consumo de álcool

O uso de álcool é um tema extremamente complexo, multifatorial, e recorrente. O uso nocivo é um fator preocupante à saúde pública, pela alta prevalência e associação com a consideráveis custos individuais e sociais. Os prejuízos ultrapassam questões econômicas. Além das implicações na saúde dos usuários, acarretam em acidentes de trânsito, violência, relações sexuais desprotegidas, tráfico e delinquência. Apesar de, historicamente os impasses causados pelo consumo de álcool serem encarados como um dilema pessoal, tem-se notado que esta percepção pouco contribui para a melhoria das dificuldades frente a situações de consumo abusivo. É preciso compreender, diante da complexidade e dos desafios do tema, que o abuso de álcool se trata também de um problema social (OMS, 2017).

Não surpreendentemente, o impacto do consumo de álcool recebe atenção considerável, tanto em termos de pesquisa como de políticas públicas, de instituições como a Organização Mundial de Saúde (OMS) e Organização Pan-Americana de Saúde (OPAS). A média mundial de consumo de álcool, no ano de 2016, foi de 6.4L de álcool puro por pessoa (com 15 anos ou mais) (OMS, 2017). O consumo de álcool nas Américas é 40% maior do que a média global. Além disso, os episódios de consumo excessivo têm aumentado nos últimos 5 anos. Ainda em relação aos países das Américas, no ano de 2000, o álcool foi o risco mais importante para a saúde nos países de baixa e média renda e o segundo nos países desenvolvidos. Estimou-se, em 2012, que uma pessoa morre em função do consumo de álcool a cada 100 segundos (OMS, 2015).

Do ponto de vista brasileiro, há uma projeção preocupante de que no ano de 2025, o consumo total de álcool puro per capita será de 10.1L (OMS, 2015). Além disso, estudos epidemiológicos realizados nos últimos 30 anos apontaram que o álcool estava dentre as 3 substâncias mais utilizadas no país, que seu consumo aumentou em 8 das 10 capitais onde foram coletados os dados e que houve um aumento significativo nos padrões de uso (na vida, frequente e pesado) (Galduróz e Caetano, 2004; Galduróz et al., 2004). Os últimos levantamentos realizados no país demonstram que também tem ocorrido um aumento no que se refere ao consumo abusivo. Em inquérito divulgado pelo Ministério da Saúde, os dados comprovam um aumento de 15,7% para 19,1% em dez anos (VIGITEL – Sistema de Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico, 2017). Os brasileiros bebem mais que a média mundial. Embora, o consumo seja menor que em países desenvolvidos, tende a haver mais problemas de dependência e abuso. Conforme a última divulgação de dados estatísticos pela OMS o consumo de álcool dos brasileiros é de 8.9L de álcool puro por pessoa e 8.4% da população preenche critérios de abuso ou dependência. Na Espanha, por exemplo, estes índices são de 9.2L e 2% respectivamente (OMS, 2015; 2017).

A partir dos padrões de consumo e suas complicações, é possível determinar a diferença entre uso nocivo e dependência. Neste sentido, o uso moderado é considerado pela *National Institute on Alcohol Abuse and Alcoholism* (NIAAA, 2015) como beber não mais que 4 doses (14g de álcool puro ou 1 copo de 355ml de cerveja) em um único dia e não mais que 14 doses por semana (homens). No caso das mulheres, não mais que 3 doses em um único dia e não mais que 7 doses por semana. Quanto ao uso pesado episódico (binge drinking), que significa atingir altos níveis de concentração alcoólica no sangue (aproximadamente 0,08g/dl5) em um curto espaço de tempo (em torno de 2hs), isso significa para homens 5 ou mais doses e 4 doses ou mais para mulheres. Referente ao uso pesado, significa consumir mais do que a dose diária ou semanal indicada como moderadas (NIAAA, 2015). Lembrando que não existe consumo isento de riscos, o que pode se afirmar é que um consumo de álcool em baixas doses e cercado das precauções necessárias para a prevenção de acidentes é considerado um consumo de baixo risco.

Considera-se abuso e/ou uso nocivo qualquer ingestão de álcool que gere algum tipo de risco, desde consumo aumentado até a dependência do álcool. A dependência trata-se de uma síndrome na qual o consumo é frequente, compulsivo, destinado à evitação de sintomas de abstinência e acompanhado por problemas físicos, psicológicos e sociais (DSM-IV-TR, 2002). No entanto, na versão mais atual do Manual de Diagnóstico e Estatística de Distúrbios Mentais (DSM-5, 2014), os dois distúrbios, abuso de álcool e dependência de álcool, são integrados em uma única desordem denominada transtorno de uso de álcool (AUD) com sub-classificações leve, moderada e grave. Para diagnosticar um paciente com AUD, estes devem preencher pelo menos 2 dos 11 critérios, no período de 12 meses. Algumas das perguntas são: no ano passado, o álcool foi frequentemente consumido em maiores quantidades ou por um período mais longo do que o pretendido? Existe um desejo persistente ou esforços mal sucedidos no sentido de reduzir ou controlar o uso de álcool? Muito tempo é gasto em atividades necessárias para obtenção do álcool, na utilização do álcool ou na recuperação de seus efeitos? No manual há referência sobre o fato de que, se a pessoa apresentar algum dos critérios, já pode ser motivo de preocupação, quanto mais sintomas existirem, mais urgente é a necessidade de mudança. A gravidade é baseada na quantidade de critérios atendidos. É fundamental que um profissional de saúde realize uma avaliação formal dos sintomas para ver se AUD está presente. Mesmo que seja grave, a maioria das pessoas com AUD podem obter benefícios com o tratamento. Porém, menos de 10% recebem qualquer tratamento.

Os dados disponíveis indicam ainda que a associação entre a cobertura de tratamento e os distúrbios do uso de drogas (dentre elas o álcool) são inadequados (OMS, 2017). Nesta perspectiva novas abordagens de tratamento têm sido estudadas, aplicadas e avaliadas. As novas tecnologias em saúde têm sido inseridas a fim de complementar tratamentos tradicionais (Holmes, 2018; Heinemans, 2014). Além disso, autores acreditam que a utilização de técnicas variadas em tempo limitado possa contribuir para facilitar a adesão (Moreira et al., 2014, Obermayer et al., 2004, Llorente, Fernandez e Gutierrez, 2000). No Brasil, estudo realizado por Terra et al. (2008) mostrou que um dos principais motivos relatados pelos alcoolistas em tratamento face a face para a não adesão era a não identificação com a modalidade de intervenção utilizada. Com isso, é evidente a importância de averiguar o que ocorre no processo de tratamento que resulta em adesão e resultados positivos.

1.2 Tratamentos

Os tratamentos clássicos de dependência química descritos na literatura são intervenções farmacológicas e psicoterapêuticas. Os tratamentos farmacológicos são mais utilizados na fase de desintoxicação. Acamprosato, dissulfiram e naltrexona são os fármacos utilizados e aprovados pelo Food and Drug Administration (FDA) para o tratamento da dependência alcoólica (Duarte, 2018; Williams, 2005). O topiramato e ondansetron vem demonstrado resultados promissores, no entanto ainda não receberam aprovação da FDA (Corrêa-Filho, 2013; Williams, 2005). Outra medicação que tem sido estudada e também não foi aprovada pelo FDA é o baclofeno. Em estudos internacionais têm mostrado eficácia (Owens, 2017; Pastor, 2012; Addolorato, 2007). Já, segundo Ronaldo Laranjeira, em uma amostra limitada no Brasil, não obteve resultados positivos. Em relação às abordagens psicoterapêuticas, estas são bastante difundidas, dentro das quais se encontram as terapias de grupo, como os Alcoólicos Anônimos (AA), o aconselhamento individual, a psicoeducação e o aconselhamento familiar entre outras.

Sabe-se que há uma diversidade de métodos disponíveis para auxiliar pessoas com problemas relacionados ao uso de álcool. Devido às barreiras para o tratamento, a prática de mais de uma abordagem não é incomum. Afinal, um problema de saúde com etiologia multideterminada de fato necessita um tratamento que atenda a estas diversidades. Por sofrer influências genéticas, psicológicas e ambientais, usuários de álcool necessitam acompanhamentos que considerem todos estes aspectos. Não existe um único tratamento específico que seja eficaz (McCrady, 2017). Lançar mão do aperfeiçoamento de novas ferramentas de tratamento pode vir a gerar resultados promissores, até mesmo aumentar as chances de adesão e, consequentemente, de sucesso na parada do uso. Na procura de instrumentos favoráveis neste contexto desafiador, os profissionais têm buscado estratégias que tenham baixo custo, amplo alcance territorial e eficácia comprovada cientificamente.

Uma alternativa a esta proposta são os serviços de telessaúde. Com uma considerável base científica e utilizados há alguns anos em outros países, trata-se de um facilitador ao acesso prático e rápido, assim como permite o alcance de longas distâncias (Holmes et al, 2018; Rojahn et al., 2016). Em dependência química pode propiciar a veracidade do relato de situações vivenciadas, visto que há uma possibilidade de anonimato. Este aspecto tem destaque em algumas pesquisas como um colaborador na terapêutica (Molfenter, et al., 2015; Mckay, et al., 2004). Adicionalmente, pode ser um aliado importante nos momentos de fissura, já que a pessoa não necessita deslocar-se de seu ambiente e o atendimento é praticamente imediato. Para esta modalidade de novas tecnologias, uma abordagem como a Intervenção Breve Motivacional (IBM) com duração mais curta, parece ser uma boa opção.

1.3 Intervenção Breve Motivacional (IBM)

O uso e a eficácia da IBM em dependência química são amplamente estudados (MacKillop, 2018, Säfsten, 2017, Constant et al.; 2013; Signor et al., 2013, Bisch et al., 2011; Lancaster & Stead, 2005). Adaptada da Entrevista Motivacional, trata-se de uma abordagem diretiva, que tem por objetivo trabalhar a mudança de comportamento por meio do estímulo da motivação e melhora da autoeficácia. Baseada na prontidão para a mudança e na constatação e resolução da ambivalência, a IBM pode ser aplicada por diferentes profissionais da saúde desde que devidamente capacitados (Barros et al., 2008). É um aconselhamento breve, com duração de aproximadamente 40 minutos. Intensamente centrada no usuário, instiga que este participe ativamente durante o atendimento, sendo realizadas perguntas abertas. Fundamentada em princípios como expressar a empatia, evitar a argumentação, fluir com a resistência, promover a autoeficácia e desenvolver a discrepância, tem o intuito de evitar a crítica e o julgamento, muitas vezes relatados pelos usuários como possíveis dificultantes no tratamento (Rollnick e Miller, 1985; Miller, Rollnick, 2001; Prochaska e DiClemente, 1982). Adicionalmente pode se trabalhar, de modo superficial, questões de prevenção de recaída. Neste momento, a intenção é adentrar aspectos como habilidades de enfrentamento, mais especificamente estratégias de *coping.* Assim, é possível entender a rotina e as dificuldades do usuário para que se realize um planejamento de parada mais adaptado às necessidades específicas deste indivíduo.

Mais utilizadas na abordagem de prevenção de recaída e fundamentais na etapa de planejamento do processo de parada, as estratégias de enfrentamento, ou também chamadas na literatura brasileira de estratégias de *coping,* tem sido intensamente estudadas. O objetivo é uma melhor compreensão dos mecanismos de manutenção de abstinência (Marlatt, Donovan & cols., 2009; Witkiewitz & Marlatt, 2004; Marlatt & George, 1984; Litman et al., 1983). Litte e cols.(2003) investigaram o papel da interação de *coping,* autoeficácia e motivação. Este estudo apontou que a interação de *coping* e autoeficácia refletiram em bons resultados de tratamento. Assim como as estratégias de *coping,* os estudos da autoeficácia já são explorados nos mais variados domínios.

1.4 Autoeficácia

Considera-se autoeficácia a convicção de que se pode executar com sucesso o comportamento necessário para produzir determinados resultados. Para Bandura(1977), dentre os mecanismos que influenciam nossas ações a autoeficácia é o ponto central. Neste sistema conceitual, as expectativas de domínio pessoal afetam tanto o início como a permanência do comportamento de enfrentamento. Para o autor, esta interação parece ter relação direta; quanto mais forte for a autoeficácia percebida, mais ativos serão os esforços para atingir seus objetivos (Bandura, 1977).

No contexto do abuso de drogas, a autoeficácia está constantemente associada a comportamentos de esforços para a cessação do consumo e evitação de recaída (Marlatt, Baer, Quigley, 1997). Poucos estudos avaliaram estas interações; Evans & Dunn (1995), não encontraram interação entre expectativas e *coping,* e lamentavelmente o estudo não avaliou a relação destes fatores com o desfecho. No entanto em um estudo realizado por Hasking & Oei (2004), houveram achados de interações complexas entre expectativas positivas e negativas de beber, autoeficácia de recusa de bebida e estratégias de enfrentamento evasivas. Em seguimento a este trabalho em 2007, foi possível observar que de modo específico variáveis de enfrentamento foram encontradas como preditores da frequência de consumo de álcool e consideradas como moderador do efeito da autoeficácia e da expectativa da recusa de beber (Hasking & Oei, 2007).

O fato de que a autoeficácia influencia no desempenho não significa que essa expectativa é o único determinante do comportamento. A expectativa por si só não produzirá o desempenho desejado se faltarem recursos. Existem inúmeras situações que se acredita com certeza de sucesso que se pode fazer algo, porém isso não se realiza porque faltam incentivos. Dada às habilidades e os incentivos adequados, a autoeficácia é um dos principais determinantes da escolha de ações: quanto esforço o indivíduo investirá e por quanto tempo será mantido o esforço para lidar com situações difíceis. Portanto, sua avaliação em contextos aditivos é extremamente relevante.

Neste campo a medida de autoeficácia tem sido utilizada frequentemente, especialmente quando as intervenções investigadas têm como foco principal a mudança de comportamento. Diferentes instrumentos são utilizados para avaliação deste conceito, sendo os mais usuais: O *Inventory of Drinking Situations* - IDS (Annis, 1982a) e o *Situational Confidence Questionnaire* - SCQ (Annis, 1982b) que se propõem a avaliar, respectivamente, autoeficácia passada e presente. Referente a autoeficácia para situações específicas, o *Smoking Self-Efficacy Questionnaire* (SSEQ) foi elaborado para investigar autoeficácia para resistir ao desejo de fumar (Colleti, Supnick, Payne,1985). Já o *Alcohol Abstinence Self-Efficacy Scale* - (AASE) está direcionado a avaliar a confiança no período de abstinência e na percepção da tentação de beber (DiClemente & cols. 1994). O instrumento *New General Self-Efficacy* - (NGSE) mede autoeficácia para várias tarefas em diferentes contextos e apresenta alta confiabilidade (Chen, Gully, Eden, 2001), por isso também tem sido empregado em estudos com estudantes, com profissionais de diferentes áreas, na avaliação de mentalidade cultural e na relação trabalho-família. Além destes diversos instrumentos, comumente encontra-se a avaliação da autoeficácia por meio de uma medida única escalar, onde se questiona "de 1 a 10, o quanto você se sente confiante?".

Embora existam muitos estudos investigando a autoeficácia e a importância do tema seja evidente, sua interação com outras variáveis, como *coping* e desfecho (mudança de comportamento), ainda é pouco explorada. Com isso, propor a aplicação dos resultados existentes sobre estas interações no tratamento ainda parece precoce. Porém, ponderar que, quando o objetivo de tratamento é a abstinência, focar nas estratégias de enfrentamento sugere ser apropriado, pois estes são fatores que determinam a recaída (Hasking & Oei, 2007). Além disso, a baixa autoeficácia pode também ser influenciada por situações vivenciadas pelo alcoolista, como estar em uma situação de alto risco sem uma estratégia efetiva (Marlatt e Gordon, 1985). Assim como, autoeficácia alta prevê melhores resultados no tratamento do alcoolismo (Greenfield et al., 2000; Maisto, Connors e Zywiak, 2000; Project MATCH Research Group, 1997).

1.5 Estratégias de Enfrentamento

O conceito mais utilizado para estratégias de enfrentamento é o de Folkman e Lazarus (1986), que define *coping* como "esforços cognitivos e comportamentais, utilizados pelos indivíduos com o objetivo de gerenciar (reduzir, minimizar, tolerar ou dominar) demandas externas ou internas diante do processo pessoa-ambiente avaliado como excedendo recursos pessoais". No âmbito da dependência química nada mais são do que esforços para lidar com situações de alto risco de recaída (ação de voltar a beber ou consumir outra droga após um período de abstinência, acompanhada muitas vezes do restabelecimento dos sintomas de dependência) (WHO, 1994).

As principais funções do enfrentamento são: lidar com o problema que está causando a angústia (*coping* com foco nos problemas) e regular a emoção (*coping* com foco nas emoções). Além disso, é importante destacar que existem estratégias bem e mal adaptativas (Folkman, 1984). Por exemplo, para evitar beber a pessoa pode usar como uma estratégia bem-adaptativa ler um livro ou mal adaptativa ir conversar com um amigo em um bar. Neste caso, uma estratégia mal adaptativa pode gerar uma situação de risco ou até mesmo uma recaída. A falta de habilidade de lidar com estas situações faz com que a pessoa se sinta insegura e, na maioria das vezes, retorne a um comportamento problemático. Isso acaba por gerar um sentimento de frustração e fracasso.

Para melhor ilustrar este paradigma, há um modelo de recaída criado por Marlatt e Gordon (1985) no qual ficam bem representadas estas situações (Fig.1). Este modelo foi construído a partir de um estudo qualitativo, realizado com alcoolistas crônicos que, após receber alta de um tratamento para abstinência, responderam qual situação inicial gerou a recidiva. A partir destas informações, foi desenvolvida uma taxonomia detalhada das situações de alto risco para a recaída. Os autores categorizam como determinantes de recaída: autoeficácia, expectativas de resultados, motivação, *coping*, estados emocionais, fissura e apoio social. Em um estudo realizado por Litt e cols.(2003), os resultados sobre a investigação do papel de *coping,* autoeficácia e motivação apontam que enfrentamento e autoeficácia se relacionam com bons resultados no tratamento, de forma independente. Já a motivação apresenta bons resultados, porém quando relacionada com as estratégias de *coping*. A capacidade do indivíduo utilizar estratégias de *coping* efetivas ao lidar com situações de alto risco, é um dos mais importantes preditores de recaída (Cummings, Gordon e Marlatt, 1980; Marlatt e Gordon, 1985).

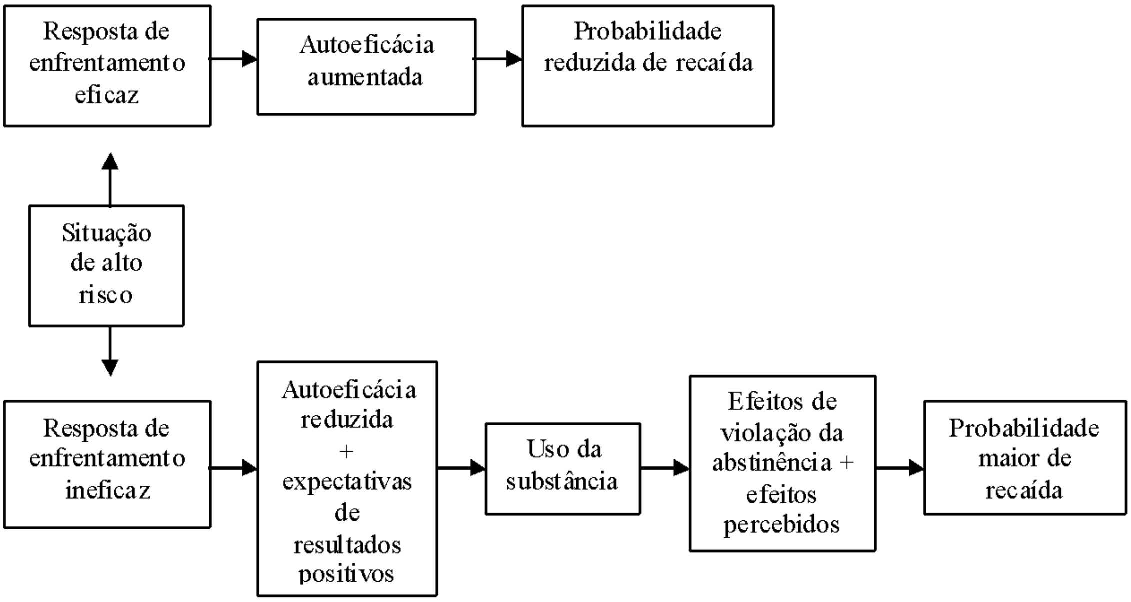

Figura1- Modelo cognitivo-comportamental de recaída adaptado de Marlatt e Gordon (1985).

As estratégias de *coping* estão diretamente ligadas ao modo como cada um enfrenta determinada situação. É desejável que, durante o tratamento, esta pessoa esteja seguidamente em processo de avaliação e ajustes para estar mais bem preparada para situações de risco. Diversos estudos tentam entender melhor que aspectos estão relacionados às estratégias de *coping* e que podem influenciar de maneira positiva ou não nos resultados do tratamento (Mccrady, 2017; Constant et al., 2016; Heinemans, N.; Et Al., 2014; Marlat, Donovan & cols., 2009). Apesar dos estudos no tema serem extensos, não há pesquisas que abordem a interferência dos tratamentos nas estratégias de *coping*. Conhecer estas relações parece ser interessante para entendermos como lidar antes, durante e após o tratamento desta população. Para tal, é fundamental que se utilizem instrumentos de medidas confiáveis e com avaliações psicométricas recentes. Contudo, a utilização destes instrumentos é um desafio, já que a disponibilidade destas medidas na literatura é para situações de saúde de um modo geral e não específica para cessação do uso de álcool.

1.6 Avaliações de *Coping*

Como mencionada, é possível apurar na literatura uma extensa variedade de instrumentos de medidas de *coping* em diferentes contextos de saúde. Estudos têm sido conduzidos no intuito de desenvolver reavaliações estruturais dos mesmos devido a importância de versões atualizadas.

Em uma meta-análise realizada por Kato (2015), é possível averiguar esta significativa quantidade de instrumentos. Neste estudo, a escala COPE (Carver et al. 1989), incluindo sua versão reduzida (Carver, 1997), foi citada como o instrumento mais utilizado nos últimos anos. COPE baseia-se nos modelos de autorregulação comportamental (Carver & Scheier, et al 1981), estresse e enfrentamento (Lazarus & Folkman, 1984). Projeta as estratégias de enfrentamento de um indivíduo como relativamente estáveis com diferentes tipos de estressores. Sua confiabilidade e validade são comprovadas (Litman, 2006; Lyne & Roger, 2000). Por outro lado, a segunda escala de enfrentamento mais utilizada tem sido o *Ways of Coping Questionnaire* - (WCQ) (Folkman & Lazarus, 1988), que considera que as estratégias de enfrentamento mudam em resposta a tipos específicos de estressores. Alguns estudos apresentam suas evidências de confiabilidade e validade (Parker & Endler, 1992; Rexrode et al., 2008).

Há outras medidas de enfrentamento encontradas, porém, com uma frequência de uso baixa (< 5%): *Coping Strategies Questionnaire-CSQ* (Rosenstiel & Keefe 1983) no qual os estressores avaliados são específicos. No caso, o instrumento foi elaborado para ser utilizado à medida em que os pacientes usem o enfrentamento diante de situações de dor; *Coping Inventory for Stressful Situations- CISS* (Endler e Parker, 1990), que foi renomeado como *Inventory Multidimensional de Coping- IMC* e compreende o enfrentamento orientado a tarefas, à emoção e à prevenção. Ainda referente a questões específicas, o *Religious Cope* - R-COPE (Pargament et al., 1990) avalia o papel da religião no enfrentamento de situações de estresse resultando em coping religioso positivo e negativo e o *Coping Responses Inventory- CRI* (Moos, 1988) também avalia o mesmo contexto, porém, os estilos de *coping* são de aproximação, alívio e evitativo. Este dispõe de duas versões, para adultos e jovens. Existem informações sobre sua confiabilidade e validade. Além desta revisão, realizar uma rápida pesquisa, também é possível localizar alguns importantes instrumentos de avaliação de *coping* como o *Life Events and Coping Inventory (LECI)* (Dise-Lewes, 1988). Este se propõe a avaliar a perspectiva da experiência do estresse de vida e o uso de comportamentos de enfrentamento em crianças de 12-14 anos; O *Coping Health Inventory- CHIP* (McCubbin et al, 1983), que avalia padrões de enfrentamento que os pais usam para gerenciar a vida familiar e a saúde com sucesso quando um membro possui uma doença crônica e o *Athletic Coping Skills Inventory - ACSI* (Smith et al,1995), específico para esportes, que reflete uma construção de habilidades psicológicas multifacetadas. Ou seja, como o atleta lida com adversidade, pressão, estabelecimento de metas / Preparação mental, Concentração, preocupação, Confiança e motivação e capacidade de preparação.

Por fim, é notável a busca por entendimento de como ocorre o modo de enfrentar problemas. Com o objetivo de melhor avaliar estes aspectos diversos instrumentos foram elaborados. No entanto, a grande quantidade destes dificulta suas avaliações. É fundamental que as pesquisas direcionem seus esforços para aperfeiçoar os instrumentos já existentes.

Em termos de uso do álcool, um instrumento difundido internacionalmente é o *Coping Behaviours Inventory (CBI)*. Este foi desenvolvido por Litman em 1983 e há aproximadamente 30 anos não tem sua estrutura reavaliada. Foi adaptado a outras populações como da Espanha e Portugal. O inventário é composto por 36 itens, nos quais apresentadas afirmativas de possíveis situações vivenciadas por usuários de álcool durante o processo de abstinência. Estas afirmativas foram construídas com base em relatos de abstêmios. A escala objetiva investigar os comportamentos e pensamentos usados para prevenir, evitar ou controlar a retomada do beber. O inventário inclui uma lista de opções de estratégias que se referem à cognição e comportamento. As respostas são por meio de uma escala tipo *likert,* com as respostas: 0 = normalmente, 1= muitas vezes, 2= às vezes e 3= nunca utilizo determinada estratégia. Estas respostas geram quatro fatores: I- pensamento positivo, II- pensamento negativo, III- evitação /distração, IV- suporte social. O instrumento foi adaptado à população brasileira e para a aplicação via telefone por Constant et al (2014). A necessidade da adaptação vem da inexistência de um instrumento de medida de *coping* para alcoolistas brasileiros.

Nesta perspectiva Sá (2017) publicou as propriedades psicométricas iniciais do Inventário de Habilidades de Enfrentamento Antecipatório para a Abstinência de Álcool e Outras Drogas (IDHEA-AD). O Inventário apresenta situações como recusa assertiva diante de uma oferta de substâncias ou controle da raiva diante de outras situações. A elaboração deste instrumento traz expectativas animadoras, pois avalia *coping* também para outras substâncias. A construção destas medidas de *coping* específicas e para a população brasileira visa o preenchimento desta lacuna. Destacar a evidente importância destes estudos é coerente, partindo do pressuposto que as estratégias de *coping* são elementos definidores no processo de abstinência bem como na busca da cessação do consumo (Litman, 1983, Folkman e Lazarus, 1985; Vitaliano et al, 1985; Savóia, Santana e Mejias, 1996; Gimenes e Queiroz,1997; Seidl et al, 2001; Sá, 2017).

A avaliação das estratégias de *coping* prevê situações de risco e possibilita um planejamento de parada do consumo de álcool bem elaborado e o mais próximo possível da realidade. Além do que, propõe uma iniciação às futuras vivências de possíveis recaídas. Porém não significa que estas vão deixar de existir, pois fazem parte do processo de parada. O que ocorre é que podem ser vivenciadas de modo a extrair pontos positivos para a busca da abstinência. Ainda, podem diminuir o número de ocorrências de recidiva, uma vez que isso interfere na motivação e autoeficácia, fundamentais na abstinência.

É possível, por meio destes conhecimentos, trabalhar na elaboração de habilidades para lidar com estas situações. Para alcançar este objetivo, é fundamental que tenhamos instrumentos de avaliação específicos para determinada situação, com validade e confiabilidade. Reavaliar a estrutura de instrumentos já existentes, que disponham dessas qualificações, parece ser uma alternativa bastante coerente. Os benefícios de conhecer e avaliar o *coping* são bem difundidos cientificamente (Mccrady, 2017; Constant et al., 2016; Heinemans, N.; Et Al., 2014; Marlatt, Donovan & cols., 2009; Folkman & Lazarus, 1988; Litman et al, 1983). Porém, sua interação com os mecanismos que provocam as mudanças de comportamento e, consequentemente, a abstinência, ainda não. Além disso, a exploração da avaliação de coping em relação a abordagens breves e novas tecnologias também é uma lacuna existente. Portanto, aliar medidas de qualidade de avaliação de *coping* com estudos que verifiquem os mecanismos de mudança relacionados às estratégias de coping parece ser uma alternativa no sentido de melhor entender o que ocorre no processo de parada e na manutenção da abstinência. Além de ampliar a percepção do tratamento para alguns momentos de trabalho personalizado no perfil do paciente.

2. **Objetivos**

2.1 Objetivo Geral:

Avaliar as estratégias de *coping* em usuários de álcool atendidos em uma central de aconselhamento telefônico.

2.2 Objetivos Específicos:

- Verificar os efeitos da IBM frente ao *coping* e determinar as diferenças entre os perfis de usuários de álcool atendidos em uma central de aconselhamento telefônico de acordo com suas estratégias de *coping*;

- Examinar a estrutura de fatores do Inventário de Comportamento de *Coping* (CBI) e testar sua invariância em diferentes grupos no Brasil.

- Propor um modelo baseado na relação entre a IBM por telefone, autoeficácia, estratégias de *coping* e resultados positivos (mudança de comportamento).

A fim de atingir estes objetivos conduziram-se 3 estudos os quais geraram os seguintes produtos:

1- *Alcohol User Profile after a Brief Motivational Intervention in Telephone Follow-up: Evidence Based on Coping Strategies.*
2- *CBI-20: Psychometric properties for the Coping Behaviours Inventory for alcohol abuse in Brazil.*
3- *Brief Motivational Intervention, Telehealth and Strategies Coping: the new health technologies.*

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Alcohol User Profile after a Brief Motivational Intervention in Telephone Follow-up: Evidence Based on Coping Strategies

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Abstract

Despite the promising results which were achieved under different intervention programs in alcohol abuse, its beneficial effects seem to vary among patients. In this way, a variable of interest might be the way to deal with a specific situation. Not surprisingly, escaping addiction has also been studied as an underlying ineffective strategy. Thus, to assess the effect of brief motivational intervention on coping strategies, a 6 months treatment was carried out in alcohol abusers. Moreover, differences among these patients' profiles were examined according to their coping outcomes. The survey was conducted by telephone, employing the Coping Behaviours Inventory (CBI) as a dependent measure. A sample of 120 participants took part in the study. Participants were randomly assigned to 2 groups: Intervention (IBM) or control (without intervention). The analysis of the participants' profiles resulted in 3 different groups: i) Most of the participants were in the control group and did not stop drinking, ii) All participants were in the control group and stopped drinking, and iii) All the participants were in the experimental group and almost all of them stopped drinking. With regards to coping strategies, participants in the last group showed better CBI scores. The results help to better understand the profile of users of alcohol following treatment, as well as the kind of strategies that they might use to stop substance use. They also depicted a more homogeneous coping pattern for those participants after intervention and some unusual profile features among the control group.

Keywords: Addictive behaviour; Alcoholism; Motivational interviewing

Introduction

Although a vast number of effective treatments have been developed with regards to alcohol abuse, there exists a higher rate of relapse among this profile of patients. In this way, several approaches have been developed in order to prevent relapse, with treatment being an essential key to abstinence [1,2]. Telephone support is one of the most widespread treatments of the last decade. In particular, it allows the overcoming of barriers such as time, stetypes and distance. According to some research, this treatment is not only an accessible option, it also has proven its efficacy under counselling through Brief Motivational Intervention (BMI) [3,4]. BMI is an adaptation from the motivational intervention that was designed for brief contacts in the basic healthcare units and can be offered through telephone plus supplementary material that is provided for this [5-7]. This approach aims to change the user's behaviour and examine any increase in self-efficacy. The follow-up is customized and focuses on the individual, who plays an active role. In this perspective, some studies demonstrate the effectiveness of IBM [8,9]. Signor et al. [3] showed that in 6-month follow-up period, 70% of the BMI group had quitted alcohol consumption compared to 41% of the participants in the control group 2. In a study by Ward et al. [10] the participants who received the BMI treatment were significantly more likely to reduce their alcohol use than those who did not; no effect was identified for other substances. Moreover, the cessation of drug use is sought by planning coping strategies that already are or will be used by the individual. More precisely, this is of particular interest in risk situations and relapse prevention [11].

Relapse–a return to the previous consumption pattern–is a part of the change process that is often related to individual learning and conscience about the problem [11]. The ability of an individual to use effective coping strategies to deal with high-risk situations has been described as a crucial factor to prevent relapse. Thus, maintaining abstinence after use cessation is related to the number, frequency and efficacy on the use of these coping strategies. To identify, understand and replace a coping strategy if needed, is a subject of effectiveness in the interventions [11]. However, the patient profile after an Intervention might suffer changes. Thus, understanding these changes might shed light on the proper use for a cessation therapy, such as the BMI or its modalities through phone counselling.

Objectives

The aim of the present study was twofold. First of all, to examine the alcohol user profiles after six months of BMI therapy in a phone counselling service in comparison with a control group. This will be carried out though a cluster analysis. Secondly, to evaluate the participant's coping strategies with regards to the identified groups in the previous objective.

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Method

Participants

From a total sample of 4688 alcohol users, among other drugs eligible for the study, a final sample of 456 (9.7%) were randomized into a control or BMI groups. All alcohol users who called the phone counselling service expressed their intention to quit (n=456) and took part voluntarily in the study. This service provides telephone counselling to drug users and their families under a BMI treatment aimed to increase motivation for behavioural change and planning.

In terms of adherence to the treatment, a number of 120 participants remained in the follow-up program for six months, where 75.8% male, 65.6% not married and had mean age of 32.4 years (sd=10.8), 70 (58.3%) had been assigned to the control group and 50 (51.7%) to the BMI group.

Data collection

Data were collected after the users accepted to take part in the study. This involved an acceptance of an informed consent. The study was approved by the Committee of Research Ethics of the Federal University of Healthcare Sciences of Porto Alegre UFCSPA under protocol no. 1215/10. The data collection took part from October 2011 to October 2012. The whole process is described more precisely in Figure 1.

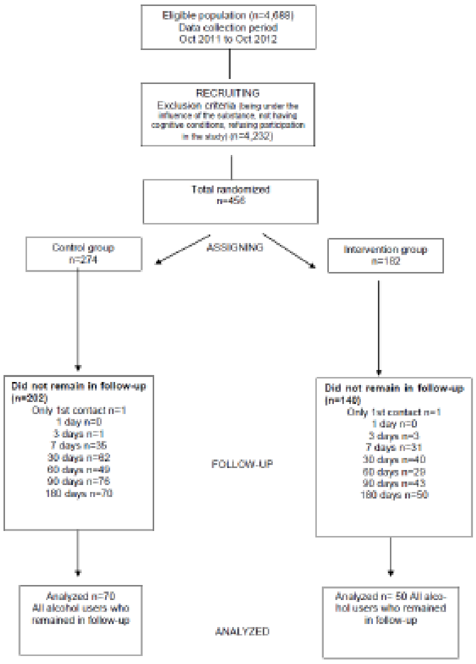

Figure 1: Flowchart of the eligibility, randomization, treatment, follow up, and inclusion to analyze alcohol users followed by VIVIVOZ for six months.

Procedures

The study comprised a randomized clinical trial. Randomization was performed using specific software created for the procedures of the phone counselling service, which enabled randomly assigning the sample subjects into the control group (minimal intervention) or BMI group.

In the BMI group, the users received counselling using BMI, screening scales and questionnaires to assess consumption. Each follow-up session had an approximate duration of 60 min. In the control group, the users only received information and the same evaluation on screening scales and consumption assessment questionnaires that were applied in the BMI group. Therefore, their sessions were shorter, approximately 40 min.

In each group, phone appointment was scheduled with the users to continue follow-up, which lasted for six months. Follow-up was scheduled starting from the date the user contacted the centre to quit the drug, i.e., 1, 3, 7, 30, 60, 90, or 180 days later. Moreover, a letter of confirmed phone appointments, as well as other support material with brochures on alcohol use and behavioural change (provided by the National Secretary of Drug Policies) [3] were sent through the post.

The Coping Behaviours Inventory CBI (5) questionnaire was not always applied in each session in order to avoid any bias on the results because of repetition. This was applied after 7 days from the first session and after 6 months. When the reactive calls did not occur (subjects did not return the follow-up calls), pro-active calls (from the phone counselling service to the subjects) were made by the study researchers.

Measures

Semi-structured interviews were applied over the telephone including questionnaires on sociodemographic data, consumption and addiction assessment scales to assess the user's motivational status, and an inventory to identify their coping strategies. The questionnaire was based on drug-use surveys, which have been widely employed in Brazil [12,13].

In order to identify the coping strategies used by the alcohol addicts to cease consumption, the Brazilian version of the CBI, adapted to phone counselling on the Brazilian population, was employed [14]. The inventory approaches coping aspects particularly associated with alcohol consumption and comprises 36 items that show situations experienced by alcohol users during the abstinence process. This tool comprised four factors: positive thinking, negative thinking, distraction/avoidance and social support. The answers followed a Likert scale of 4 points: 0: Usually, 1: Often, 2: Sometimes, and 3: Never. The score of each CBI factor was obtained by adding up the answers of the total raw score or by dividing the total sum by the number of items to obtain an average. Lower scores mean the strategies were used more frequently [5].

Data analysis and design

Data were analysed using the software BMI SPSS Statistics for Windows version 23.0 [15]. Descriptive statistics were applied onto the distribution of variables presented in absolute and relative frequency tables. Quantitative data were described as means and standard deviation. In order to verify the change in the scores of the CBI factors between the groups at the different measures in time, a mixed-design analysis was undertaken as follows: 3 (moments) × 4 (CBI factors) × 2 (treatment group) designs. Furthermore, a cluster analysis was performed including the cited variables plus the situation with regards to their outcome (e.g., relapse, quit, among others). This analysis allows us to include both continuous and categorical variables. This was performed under the Log-likelihood test. Finally, a second, mixed-design analysis was carried out following the previous logic. However, the factor group employed was the one suggested under the cluster analysis conducted before. Lastly to examine the role of coping, a one way ANOVA was carried out.

Results

An analysis of the sociodemographic data of the alcohol users included in the study did not indicated significant difference among the experimental and control group in terms of age, education, gender, marital status, salary and occupation (all $p>0.05$ for t students or χ^2 test with regards to the type of variable selected and underlying characteristics).

In relation to the alcohol consumption characteristics of the 120 participants, 89.9% reported having maintained this use for over five years and most alcohol users (90%) met the criteria for addiction diagnosis. Most users (61.3%) were at an action motivational stage. In terms of associated drug use, 40% of the sample used three or more substances and the combination only of alcohol and tobacco was reported by 16.2% of respondents.

		Experimental		Control		Cluster 1		Cluster 2		Cluster 3	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Initial	Positive Thinking	1.21	0.71	1.33	0.63	1.55	0.61	1.14	0.67	1.09	0.68
	Negative Thinking	1.28	0.73	1.37	0.76	1.61	0.67	1.14	0.78	1.13	0.72
	Distraction-Avoidance	1.64	0.51	1.81	0.53	1.71	0.48	1.8	0.53	1.63	0.52
	Social support	1.72	0.61	1.94	0.56	2.06	0.52	1.83	0.52	1.68	0.54
Follow-up	Positive Thinking	1.22	0.72	1.1	0.68	1.51	0.62	0.94	0.62	1.19	0.76
	Negative Thinking	1.22	0.83	1.2	0.82	1.6	0.8	0.98	0.74	1.23	0.87
	Distraction-Avoidance	1.79	0.55	1.76	0.59	1.84	0.55	1.73	0.55	1.65	0.54
	Social support	1.91	0.53	1.96	0.56	2.1	0.5	1.91	0.55	1.76	0.54
Final	Positive Thinking	1	0.73	1.13	0.71	1.57	0.71	0.81	0.57	0.73	0.58
	Negative Thinking	1.11	0.71	1.39	0.8	1.66	0.77	1.13	0.78	0.97	0.68
	Distraction-Avoidance	1.8	0.56	1.96	0.65	2.03	0.64	1.91	0.7	1.68	0.47
	Social support	1.99	0.6	1.99	0.56	2.2	0.52	1.93	0.59	1.82	0.62

Table 1: Descriptive statistics on the 3 cluster stipulated with regards to post treatment.

Table 1 shows the descriptive analysis on the CBI factors and measurements. As mentioned before, a mixed repeated measure was carried out. First of all, the differences between moments (1st, 2nd and 3rd) did not reach the statistical significance ($F<1$). On the other hand, the differences between CBI factors were statistically significant: $F=68.18$; $MSE= 28.92$; $\eta^2=0.45$. Moreover, an interaction between moments and CBI factors was found: $F=5.41$; $MSE=0.86$; $p<0.05$; $\eta^2=0.06$.

A cluster analysis was also carried out, obtaining 3 different profiles. A 3-solution was proposed by the analysis, where samples were similar in size. Generally speaking, the control group was divided into two sub clusters, whereas the cluster 3 was mostly made up of the experimental group. In the Cluster 1, the subgroup was made up of 38 participants (35.5% of the global set). The majority of participants were in the control group (68.4%) and did not quit the drug (47.4%). For cluster 2, the subgroup consisted of 38 participants (35.5% of the global set). The full subgroup comprised participants from the control group (100%) and managed to quit the drug (100%). Finally, Cluster 3 had 31 participants (29% of the global set). The full subgroups were participants from the experimental group (100%) and almost all of them quit the drug (96.8%).

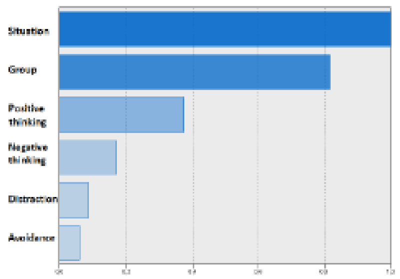

Figure 2: Importance of each predictor in the cluster analysis distinction.

The cluster sizes reason was 1.23. Figure 2 shows the importance of the different predictors (in particular, situation and as expected, group selection). Moreover, Figures 3 and 4 show the particular differences in composition and between other factors, such as the main coping variables: positive and negative thinking. It is notable that cluster 1 differs remarkably in the distribution with regards to clusters 2 and 3. As can be seen from Table 1, the coping factors presented better punctuation for cluster 3 (mostly the experimental group under treatment), than the other subgroups.

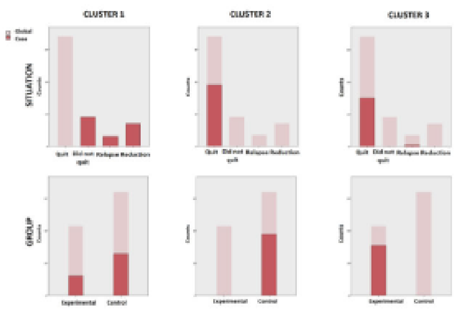

Figure 3: Situation and group composition per cluster.

A mixed repeated measure was carried out following the previous logic of factors and moments but changing the group selection for the cluster subgroups. Moreover, the new descriptions of the new groups (or cluster) were added to Table 1. The differences between moments did not reach the statistical significance (F<1). On the other hand, the differences between factors were statistically significant: F=71.92; MSE=28.13; p<0.001; η^2=0.483. An interaction between moments and CBI factors was found: F=4.90; MSE=0.62; p<0.001; η^2=0.06. Last of all, an interaction between cluster and factor was found: F=4.22; MSE=0.201; p<0.005; η^2=0.09.

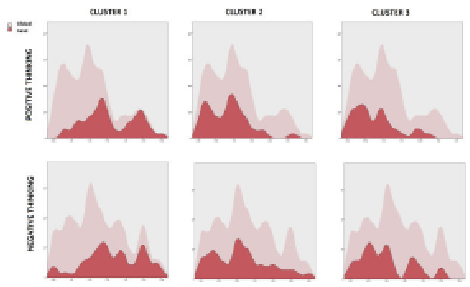

Figure 4: CBI main factor distribution (positive & negative thinking) per cluster.

Finally, in order to examine the role of coping, a one way ANOVA was carried out under the cluster groups obtained as a factor. Cluster 3 showed more coping strategies for "Positive Thinking" (F=64.55; MSE=21.91; p<0.001), "Negative Thinking" (F=265.67; MSE=50.23; p<0.001), "Avoidance/Distraction" (F=10.92; MSE=3.90; p<0.005), and "Social Support" (F=24.17; MSE=6.87; p<0.001).

Discussion and Conclusion

The aim of this study was to examine the effect of the BMI intervention on coping strategies. Moreover, a cluster analysis on the different profiles after treatment was carried out. The results on the previous analysis of variance showed that, after six months of telephone help, the users of both groups began using the strategies of positive thinking more. It must be pointed out that the BMI deals with issues related to the coping strategies and its main goal is not to increase the use of the strategies, but instead to motivate the individual to change behaviour [11]. In this sense, it is a key to note that, if the individual is flexible towards change, the coping strategies can be effective [16].

After an analysis of the participants profile; three clusters, or better to say, profiles were suggested. In particular, one might possibly conclude that the control group was divided into two groups, the one that quit and the one that was not able to do that. Moreover, the third cluster was almost exclusively made up of the experimental group, which was really similar to the control subgroup that managed to quit. All this suggests that an underlying variable might operate in the normal process, and the treatment applied is more related to this variable. In other words, more research is needed to explain why a subgroup of participants in the control group manages to quit. This difference was not found in the experimental group which suggests that it might be a result of the treatment. Moreover, after an analysis of variance, the benefits of treatment with regards to the other subgroups and coping were shown.

At the beginning of a treatment, the users tend to use behavioural strategies more, such as avoidance/distraction and social support, while by the end they use cognitive strategies more such as positive thinking and negative thinking. This study supports this result since the most employed factor at the beginning of follow-up was social support when the two groups were compared. Social support is any support network the individual uses for help when ceasing the use [5] by the end of the follow-up, this strategy was used less. In contrast, the cognitive strategies were used more by the end of the follow-up. With that in mind, the time factor must be considered since the coping strategies tend to require adaptations over the abstinence maintenance period [11,17]. The follow-up suggests that the time is directly proportional to the frequency of the strategies, i.e., in order for abstinence to be maintained, the individual must adapt according to his or her needs. Over time, some avoidance/distraction activities, for instance, are no longer effective and a new strategy planning is required. In face of that, it would be interesting to make a "menu" of strategies available to alcohol users. Further studies for longer periods (12 and 24 months) would be important to investigate this need to adapt the strategies. Bear in mind that the studies that investigated coping strategies, including those that used the CBI as a tool, are cross-sectional, thus they do not delve much into the changes that may occur over the abstinence process [18-20]. This aspect is a key to better adapt the coping strategies since changes are required for successfully maintaining abstinence.

On the other hand, it was seen that most of the sample in both groups was already at the action motivational stage at the first contact. At this stage, the individual experiences greater autonomy and begins using strategies to change drug consumption behaviour [16]. This may have enabled the empowering of both the BMI and control groups regarding the similar frequency with which they employed the strategies. Thus, it is supposed that the individuals' motivational stage played a role in the lack of a significant increase in the use of coping strategies among those in the BMI group since they were all at the action stage. At that stage, the individual is commonly putting into effect an action plan to quit using a given substance. The subjects might not have needed many changes since they were at an advanced stage regarding behavioural change.

This study has several implications, both a theoretical and applied level. For the theoretical one, knowing the alcohol user's profile and the changes that take place during long abstinence periods is important to prevent relapse. Therefore, developing skills to deal with these changes is crucial to maintain abstinence since knowing the coping strategies directly impacts on the ability to plan such maintenance.

On an applied level, some similarities can be found to the general profile, allowing us to improve the most suitable treatment. In particular, the profile of the subjects in the present study is similar to that of alcohol users who took part in other researches in Brazil [3,21]. Most users are male, above 25 years old, and use alcohol often or very often. Regarding the association between the use of alcohol and other drugs, it is known that poly drug use has received special attention given the relevance of its consequences [12]. The present data show that a small part of the sample consisted of mono-users and that most subjects who concluded follow-up associate three or more substances. The association of alcohol with another substance such as tobacco or cocaine/crack was small. However, 40% of the sample associate three substances including alcohol, which confirms the data of the latest household surveys in Brazil [3,4,9] One of the limitations of the present study was the significant loss of users during follow-up. The fact that telephone follow-up is also a social support strategy (behavioural strategy) might have played a role in the losses. Such losses can be understood as part of the process of ceasing use. Therefore, not requiring social support and acquiring greater autonomy in this process may justify why the subjects did not make the calls to continue the follow-up. Nevertheless, pro-active calls were made, with the phone counselling service calling the clients, so that this loss would be minimized.

Another limitation is the different distribution between the groups, with a larger population in the control group (n=70) than in the BMI group (n=50). This may be attributed to the randomization performed by the software or to the exclusion criteria since more subjects in the BMI group were excluded from the study for not concluding the follow-up. In addition, only self-reporting was used and no biomarker was used to confirm abstinence due to the difficulty in collecting biological samples from different regions in Brazil.

To sum up, the results show that the alcohol users, irrespective of being in the BMI or control group, or the different clusters, used positive thinking strategies more by the end of the follow-up in order to maintain abstinence. Furthermore, this difference was even higher for the 3 cluster make-up of the experimental participants mostly. Therefore, this work suggests that telephone counselling has a beneficial effect in terms of employing more positive and negative-thinking strategies for quitting alcohol. Not to mention, that it is an accessible and a free treatment.

For future lines of research, further studies are required with larger samples and longer follow-up time to investigate the impact of BMI over the telephone on the use of coping strategies by alcohol users. Telephone follow-up aiming to help in maintaining abstinence must be more widely explored since this approach proved important among this population and has many upsides, such as being anonymous and free. Moreover, the data of the present study contributes to better knowing the profile of alcohol users and the type of strategies they used to cease substance consumption. More precisely, further research on the drug abuser that manages to quit is necessary. That would shed light on the variables that might operate underneath. The study results allow a customized program to be created to plan the coping strategies aiming at abstinence and its maintenance.

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Collaborations

Constant HMRM, Ferigolo M and Barros HMT participated in the design of this study. Constant HMRM, Fernades S and Signor L conducted a literature review. Constant HMRM, Figueiró, HMT Barros LR and Tatay CM conducted a statistical analysis. Constant HMRM, Figueiró LR, Ferigolo M and Tatay CM conducted conclusions and discussion. All of authors participated in the review and reading in full of this article.

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Title: **Coping Behaviour Inventory -20: brief version for alcohol abuse in Brazil**

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Abstract

For any professional, it is of crucial importance to know not only how coping strategies are present in an individual, but to know about its role to the treatment of alcohol abuse. Moreover, new approaches have emerged in this area in terms of relapse prevention and the counseling by phone can be an alternative. The aim of this study is to examine the factor structure of the Coping Behaviours Inventory (CBI) and to test its invariance across groups in Brazil. For this purpose, two studies were carried out: study I, the CBI factor structure was revisited in terms of exploratory factor analysis. Study II, face-to-face and phone counseling were examined through confirmatory factor analysis and multigroup analysis. The results confirmed the 4-factor solution with a revised model for the removal of some items. This new version presented better indexes than the previous versions developed over the last 30 years that was ones reformulated from 60 items. Moreover, the new version showed convergent validity with the IDHEA questionnaire. Finally, the Brazilian CBI version showed no differences between the phone counseling and face-to-face participants in a metric level after a multigroup analysis.

Keywords: coping behaviors, alcoholism, counseling, psychometrics.

Introduction

Alcohol is one of the most socially acceptable drugs that exist in modern times. However, its consumption is responsible for over 3 million deaths a year worldwide (World Health Organization, 2017). According to recent surveys, alcohol has the highest rate of dependence or abuse (National Institute on Alcohol Abuse and Alcoholism, 2015). It is well known that quitting a drug and remaining abstinent is a complex process. Not surprisingly, this is a subject of interest for healthcare systems. In this way, we have witnessed a vast number of coping measures carried out in this field that have aimed to provide better and more effective assistance to the population. However in places with great territorial extension or difficult access some barriers difficult that the assistance reaches this population. Phone counseling is one of the options to overcome these barriers that have emerged over the last decade, offering promising results. Its potential to increase the efficiency of healthcare for chronic diseases has been studied (Bisch et al., 2011; Rojahn et al., 2016). Furthermore, some research has indicated that this tool might provide a way for the patient to not suffer the stigma of being identified as an addict (Molfenter, Boyle, Holloway, & Zwick, 2015; Signor et al., 2013).

In particular, this issue seems to be crucial in countries such as Brazil, not only because of its geographical extension, but also because the prevalence of alcohol-related disorders affect 4.1%, and 2.3% of the population are dependent on alcohol (World Health Organization, 2016). To such an extent that the relapse rate in alcohol users reaches 50% in the first 12 months. Moreover, this rate is even increased for a period of 4 years abstinence, where relapse rates reach almost 90% with no follow-up treatment (Bottlender, & Soyka, 2004; Moos, & Moos, 2006). Therefore, the Relapse Prevention (RP) under the phone counseling modality has been an important tool designed to help this population. The logic behind it is that it aims to identify risk situations and coping strategies related to situations of abuse, increasing contact with the patient.

One of the main reasons to have frequent contact with a patient under treatment is to avoid a relapse. This is a critical moment because one should bear in mind that it is rather a complex process which is directly related to the coping strategies employed in the past (Marlatt & Donovan, 2009). The coping strategies are defined as behaviors used by individuals to deal with certain situations (Folkman, 2013). These strategies are critical in order to quit, and obviously, a determining factor in the success of abstinence (Marlatt & Donovan, 2009; Witkiewitz, & Marlatt, 2004; Yang, Mamy, Gao, & Xiao, 2015). Studies have shown that individuals who have a higher repertoire of effective strategies also have a greater chance of quitting alcohol consumption (Constant, 2013; Litman, Stapleton, Oppenheim, & Peleg, 1983; Marlatt & Donovan, 2009; Ruiz, Dickinson, & Pincus, 2002).

The study of coping strategies has been widespread in many countries during recent years, with a large body of instruments being developed in various areas such as stress and health problems, included chemical dependency (Folkman, & Lazarus, 1985; Folkman, & Moskowitz, 2004; González, & Suárez, 2002; Seidl, Tróccoli, & Zannon, 2001). However, the literature on the assessment of coping strategies for the Brazilian population little has explored the addition field, in particular in alcohol abusers. The most widespread studies at the national level are about coping and stress / work, spirituality and pain. Currently an instrument on coping in the context of drug and alcohol use was developed by Sá, Olaz & Del Prette (2017), apparently the only one and has a focus on skills. Thus, a study sought a cross-cultural adaptation of the traditional tool called the Coping Behaviours Inventory (CBI) (Constant et al., 2014), constructed and validated in England and designed to explore the behaviors and thoughts used by alcoholics to prevent, avoid or control the drinking (Litman et al., 1983). In view of its satisfactory results, an analysis of its factor structure for

Brazilian population seems recommendable. In addiction to, emphasize the importance of evaluating the strategies to stop consuming alcohol with a current instrument. A similar study, to assess the structure of the CBI in the Spain reported a structure of the inventory with 4 factores. Where the factores 3 and 4 have been changed. In this study there is no factor called social support that would be the 4 factor in Litman. The issues attributed to it saturate in factor 3 distraction and 4 factor is called evitation. The work presents satisfactory results and suggests for future studies an evaluation of these coping variables with other important treatment variables such as motivation, self efficacy, abstinence (González & Suárez, 2002).

The main advantage of the CBI is it is an easy specific application for alcohol users to quit drinking. Furthermore, the ability to measure change of this inventory can be proved in some studies that shown that the test to be a sensitive indicator of change (Constant et al., 2017; Ito, Donovan, & Hall, 1988; Ruiz, Dickinson, & Pincus, 2002). However, there are questions with regards to its factor structure and it invariance across classical treatment, face-to-face and by phone counseling, that remain unclear. There are few studies that investigating on telemedicine in Brazilian population. Telephone-based monitoring might be a way a patient talk on the alcoholism more sincerely as this is an anonymous service. Is known that when there is anonymity this facilitates the veridical account (Molfenter, et al., 2015). Moreover, it overcomes barriers such as distance. These are potential advantage in a country such Brazil, geographically so diverse. Thus, tools that allow professionals to assess these goals are needed. Therefore, the aim of this study is to examine the CBI factor structure and its invariance across the different groups . This will shed light on the identification of coping strategies in such a complex process as the abstinence one, providing a needed tool of this population. In this way, the original scale structure CBI was revisited, examining its psychometric properties among participants undergoing treatment from phone counseling compared to the traditional face-to-face service.

Materials and Methods

Participants

The inclusion criteria were as follows: i) participants over 18 years old, ii) that referred the desire to stop drinking. Participants who did not agree to participate in the study or did not follow it until the end were excluded. Two sample selections were carried out, where three groups of participants volunteered to take part. A first sample (study I), of 670 participants attending a phone counseling service that covers the whole Brazilian population, was employed for the exploratory factor analysis (EFA) (135 women and 535 men with mean, age of 31.46 years, standard deviation 8.43 and an age range from 18 to 60). 54.3% were high school graduates, 31.4% of participants had no studies and 14.3% had attended further or higher education. Here, 79.3% were active workers and 20.7% were unemployed. With regards to their marital status, 54.8% were single, 32.9 % were married, 12% were divorced and 0.3% were widowed. Finally, a total of 82.9% consumed alcohol plus other illegal drugs, 9.6% alcohol as well as tobacco and 7.5% of participants consumed only alcohol.

Two new different samples (study II), similar to the previous one, volunteered to take part: one undergoing counseling over the phone and a second sample receiving face-to-face treatment. Thus, a sample of 221 participants (47 women and 174 men, with mean age of 33.57 years, standard deviation 9.62 and age rage from 18 to 63) took part in the first group undergoing counseling over the phone. A second sample, which was recruited face-to-face, consisted of 232 participants (56 women and 175 men, with mean age of 39.13 years, standard deviation 10.9 and age range from 18 to 60). The aim of using independent samples was to conduct a confirmatory factor analysis (CFA) for the CBI: one sample with the original study characteristics (face-to-face participants) and a second one with the characteristics of interest in telephone counseling. Moreover, for test the convergent validity, another questionnaire that evaluation coping skills was included. This sample follow the similar sociodemographic characteristics that the previous ones.

Materials

All participants filled in a questionnaire consisting of sociodemographic information and aspects related to patterns of consumption.

The instruments included were:

i) *Questionnaire of sociodemographic information:* questions about gender, age, education, marital status, and family income.

ii) *Coping Behaviors Inventory – CBI* (Litman et al., 1983; Constant et al., 2014): adapted to be applied to the Brazilian population. The inventory has 36 items related to coping strategies to avoid situations of risk for the consumption of alcoholic beverages. This instrument was developed from reports of alcoholic patients who described in detail the methods used to prevent relapses. The instrument is based on the hypothesis of the relationship between risk situations, coping availability, coping behaviors and individual aspects such as self-perceptions, self-efficacy and self-esteem. The answer options the coping strategies result in 4 factors: F1-positive thinking; F2-negative thinking; F3-distraction/ avoidance; and F4-social support. The answer refers to the frequency with which a given strategy is used on the Likert scale: 0=Usually, 1=Often, 2=Sometimes, and 3=Never. The factor score is obtained by adding up the answers and by dividing the total sum by the number of items belonging to that factor to obtain an average. Lower scores mean the strategies were used more frequently.

iii) *Inventory of Anticipatory Coping Skills for Abstinence from Alcohol and Other Drugs (IDHEA-AD)* (Sá, Olaz & Del Prette, in press) (Supplemental Materials). It is the only specific existing instrument for alcoholics in Brazil. It is an questionnaire of self-report with 30 items related to a specific situation and a possible behavioral response to the demands of the situation. Therefore, the respondent should indicate one of four possible points of response, estimating how often he responds in the way he describes at that moment in his life: never, not infrequently, often or always. The IDHEA-AD results in a total score, with the sum of the scores of all items, and 3 factor scores, with the sum of the scores of subsets of items. Factor 1 - Assertiveness and planning for situations of high risk of consumption of Substances. Factor 2 - Emotional expression of positive feelings for the maintenance of abstinence. Factor 3 - Emotional self-control in adverse situations.

Design and data analysis

Firstly, a cross-sectional study was carried out to revisit the internal structure of the CBI in terms of internal consistency and factor solution (study I). For this data analysis, was used the SPSS (Statistical Package for the Social Science, version 23.0). Secondly, the 4-factor solution was examined across groups undergoing face to face and phone counseling. In this way, an invariance study was undertaken (study II). For this data analysis, the AMOS 18 was employed. The data collections were taken from May 2011 to October 2014 (study I) and July 2015 to July 2016 (study II) from different specialized services for chemical dependence.

Descriptive statistics (measures of central tendency and dispersion, frequency distribution and percentage) were used in the characterization of the sample. The assessment of the original instrument structure was carried out by Factorial Analysis in two stages: EFA and CFA were undertaken first of all. In the EFA, the method of principal axis factoring was used in order to investigate the behavior of original items. Here, one should bear in mind that the CBI questionnaire follows a polychorical point scale. This might present some instability on the data, for this reason, a bigger sample size was employed. Assumption of Normality and Continuity also were revisited, even if different authors point out that the violation does not have statistically significant consequences on the results (Holgado Tello, Chacón Moscoso, Barbero García, & Vila Abad , 2010; Muthén & Hofacker, 1988). According to Jöreskog (2001), the estimates obtained from variables with asymmetric distribution are not severely altered if the values of the root mean square error (RMSEA) index are kept within the accepted standards (0 - 0.08). As commonly done in the literature, the study also measured the appropriateness of model which occurred through the correlation matrix, Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. For the rotation of the factors, an orthogonal Varimax rotation was suggested in the literature (also suggested by González, & Suarez, 2002) (Litman et al.,1983). However, a Promax option was chosen since the factors correlated and an overlap across them is suggested.

In the CFA this statistical analysis is more detailed and accurate when compared to EFA, directly allowing to test a theoretical structure such as that proposed in the present study (to assess the 4 factors). This analysis presents some indexes for assessing the goodness of fit (Byrne, Shavelson, & Muthén, 1989; Hooper, Coughlan, & Mullen, 2008; Kelloway, 1998; Yoon, & Uysal, 2005; Van de Vijver, & Leung, 1997): the chi-square (Jöreskog, 1993; Satorra, A., & Saris, 1985) within the incremental fit indices, the comparative fit index (CFI) whose values range from between 0 and 1 and the reference value is .90 (Bentler, 1990; Bollen, 1989a) and finally, within parsimony adjustment indices, the error of the root mean square approximation (RMSEA) where the smaller the value, the better the fit, the reference value being .05 (Rigdon, 1996).

Finally, a multigroup analysis was carried out on face-to-face and phone counseling participants to test invariance. Here, a hierarchical procedure must be carried out, beginning with an unconstrained one, and adding constraints successively. The logic of this procedure is to test the factorial homogeneity structure across groups, from a stage where all parameters do not need to be equal to a stage where they have to be. In this way, several authors (Cheung, & Rensvold, 2002) recommend the invariance analysis on the development of a psychometric test. Moreover, the literature (Vandenberg, & Lance, 2000) highlights its relevance in the study of parameters from different populations. Therefore, three Models testing configural, metric and scalar invariance were examined across telephone counselling and face-to-face participants.

Ethics

The studies were approved by the Ethics Committee at the Universidade Federal de Ciências da Saúde de Porto Alegre-UFCSPA, as well as committees of other centers involved in the research (n.38026014.0.0000.5345). The questionnaires were applied by university health students trained to apply them. In addition, they received continuous training and assessments monthly.

Results

The Internal consistency for the whole database in the first sample (n=670) (study I) presented optimal values ($\alpha = 0.90$ and homogeneity between 0.17 to 0.5) as well as the subgroups employed in the other two samples (study II) ($\alpha = 0.91$ and homogeneity was between 0.23 to 0.61 for the participants under telemedicine treatment, and an $\alpha = 0.90$ and homogeneity was between 0.17 to 0.63 for those under face-to-face treatment). An EFA and a CFA were carried out for the participants in the first sample (study I), while a CFA and multigroup analysis were employed in the other two samples (study II).

Study I- sample 1 (n=670)

The KMO test and Bartlett sphericity test showed optimal values: KMO=.932, $X^2_{(df = 630)}$=6091.94, p <.001. The percentage of explained variance was 47.77. Following the Cattell criteria (sedimentation graph self) 7 possible factor solutions were suggested.

However, in most of the cases, the percentage of explained variance was very low (approximately 2%). Following both theoretical (based on the coping studies developed since the 80's until today) and empirical criteria (by comparing existing measures and with the assessment of a different mode of application by telephone), a 4 factor solution was tested. A 3-factor solution was also tested presented less than 3 observations in one factor; for this reason, it was rejected. Table 1 contains the item loading for each factor, where a total of 20 items were selected - therefore offering a new version, shorter than the previous ones. At this stage, the items that presented low saturation (< .40) were removed due to statistical criteria. Moreover, item 14 in factor 1, as 23 and 26 in factor 2 were not considered because of theoretical criteria. Supported by Folkman study this item (14) seems to refer to a behavior as avoidance and distraction (factor 3) and not to a positive thinking (factor 1). Also, in the instrument from Litman it not load at this factor. The same situation happens for the two other items. Being that there is a divergence of these items in the two versions from Litman (version of 60 and that of 36 items), which leads to think that they are issues that vary greatly, therefore would not be wise keep them in a reduced version (Folkman, 2013).

Study II - CFA analysis: Comparison between Face-to-face (n=232) and Telephone counseling participants (n=221)

In terms of CFA, the new solution was presented across two different samples: Face-to-face and Telephone counselling respondents. More precisely, these indexes were evaluated among the traditional model and the examination developed in 1983, depicting, the current version, a better fit (see table 2). The CFA employed in the current solution confirmed an optimal fit for a 4 factors solution in both participant samples. Table 3 depicts the mean score, deviation, error and internal consistency among factors and groups. The variability was slightly higher for telephone in F1 (Positive thinking) and F2 (Negative thinking) in comparison to face-to-face, and the lower for F3 (Distraction/ avoidance) and F4 (Social Support).

Correlations between IDHEA and CBI were carried out across face-to-face participants (see Table 4), as this is the traditional condition in the field. The correlation of the instruments it was not possible of evaluated in the group telephone counseling. Because this could do become harmful for participants since at this modality they ever responded many questionnaires. In terms of convergent validity, the new CBI structure was statistically correlated with the IDHEA questionnaire.

Finally, a multigroup analysis was carried out to determine any significant differences in structural parameters between groups to a metric level. As depicted in Table 5, it is clear that there are no significant changes comparing Model 2 with the less constrained model or baseline (see also fig 1).

Discussion and conclusion

The present study showed that the CBI-Brazilian is new version fitted adequately to the original model, even if it suffered changes from its previous versions. This is not the first time that the questionnaire is reduced, being the previous version of a total of 60 items. With regards to internal consistency, the Cronbach's alpha showed optimal coefficients across the 3 samples. Moreover, the 4 factor solution presented an optimal fit in terms of CFA. As mentioned before, the extraction of some items was necessary because of a low factor weight. A possible explanation might be directly linked to the current population under study. More precisely, the sample of this study, in comparison to the sample of the original study, shows differences. Here, the participants were not necessarily hospitalized as a common method before. In this way, the application methods for at least by one of the groups have also changed, from the traditional face-to-face administration to the telephone. Nevertheless, it is important to note that the original instrument also presented a 4 factors solution (F1-positive thinking. F2-negative thinking.F3-avoidance/ distraction and F4-social support), the same that was found among three groups. However, items such as number 30 (avoiding places where I drank) seem to fall under the avoidance/ distraction factor 4. One possible explanation could be that the item follows the first solution proposed for this questionnaire, keep it in the social support (factor 4). It is important to bear in mind here that initially this item was stipulated in social support (factor 4) and moved for avoidance/ distraction (factor 3) in the 1983 version by Litman. With regards to item 24 (which moved from the avoidance/distraction factor to social support), we stipulated that something similar happened to the traditional version with item 30.

On the other hand, a similar study performed in Spain also presented subtle alterations in terms of items, keeping the same solution. Apparently, the Spanish adaptation reformulated the “social support” need (González, & Suárez, 2002). In this way, the internal consistency found also indicates the weakness of this subfactor. However, its heuristic content in the traditional scale leads to maintain it. This highlight the need of reevaluation for future lines of research.

Despite the fact that CBI is an important inventory for the study of coping with specific reference to alcoholism, its structure has changed over the last 30 years. Therefore, one of the main contributions to the present study is to shed light on their factor structure for alcohol abuse. This issue becomes even more complex when we mention the different subpopulation of alcohol abuse. Therefore, this study also supports its use among different groups to a certain extent. In particular, its invariance across both telehealth and face-to-face on a both configural and a metric level seems to be of interest. In other words, this result suggests that the factor loadings are invariant across populations, offering a questionnaire that psychometrically adapts to both traditional samples and to the new therapeutic approaches of our era in terms of factor loading. However, the invariance did not reach the scalar level, also known as strong invariance. As Bollen (1989a) indicated, this might be indicative of potential measurement bias among items intercepts. Therefore, this suggests differences in the way of responding and rating the items which can be higher or lower among type of administrations. As Gordoni, Schmidt, & Gordoni (2011) claimed in a study comparing both modalities, the face-to-face way might be superior in terms of item random error. Thus caution is advised here. Telephone interviews might cause attenuated correlations in comparison to the face-to-face mode. However, these problems can be reduced by increasing sample size and by using the structural equation modeling (SEM) approach, which enables correction for attenuation (Bollen, 1989b; Byrne, 2006; Kline, 2005). Finally, future studies can deepen evaluation the CBI and shed light on new research models on coping assessment. This could be a therapeutic progress for clinical assessment.

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Table1. Four-factor solution and item loadings for the CBI- brazilian version (Promax rotation).

Factor	F1 Positive Thinking	F2 Negative Thinking	F3 Distraction/ Avoidance	F4 Social Support
1. Thinking about how much better off I am without drinking.	**.43**	.06	-.09	.07
2. Telephoning a friend. *	.31	-.09	.21	-.01
3. Keeping in the company of non drinkers.	.28	-.15	-.08	**.45**
4. Thinking positively	**.52**	-.10	-.08	.25
5. Thinking of the mess I've got myself into through drinking.*	.35	.28	.05	-.15
6. Stopping to examine my motives and eliminating the false ones	**.54**	.00	.02	-.06
7. Thinking of the promises I've made to others.*	.35	.14	.19	-.10

8. Staying indoors – hiding.*	-.18	.22	.28	.02
9. Pausing and really thinking the whole alcoholic cycle through.	**.50**	.22	.00	-.15
10. Leaving my money at home.*	-.02	.07	.26	.02
11. Recognizing that life is no bed of roses but drink is not the answer.	**.55**	.14	-.11	.00
12. Going to an A.A. meeting.*	.16	-.00	.19	-.01
13. Knowing that by not drinking I can show my face again without fear of what others will think.	**.47**	.11	.03	.04
14. Cheering myself up by buying myself something special instead.	.43	-.02	.14	.02
15. Facing up to my bad feelings instead of trying to drown them.	**.55**	-.05	.07	-.00

16. Working harder*	.35	-.08	.25	.01
17. Realizing it's just not worth it	**.42**	.15	-.10	.18
18. Waiting it out until everything is shut.	-.04	.07	**.49**	.08
19. Remembering how I've let my friends and family down in the past.	-.04	**.62**	.15	-.05
20. Keeping away from people who drink.	-.04	.04	.09	**.56**
21. Going for a walk.*	.31	-.23	.13	.19
22. Looking on the bright side and trying to stop making excuses for myself.*	.32	.27	-.03	.15
23. Realizing it's affecting my health.	.05	.57	.06	.00
24. Start doing something in the house.	.10	.05	.12	**.40**
25. Considering the effect it will have on my family.	.16	**.57**	-.01	-.01

26. Reminding myself of the good life I can have without drink.	.05	.59	-.13	.10
27. Getting in touch with old drinking friends who are better now*	.23	-.00	.28	.01
28. Making up my mind that I'm going to stop playing games with myself.*	.20	.23	-.06	.35
29. Eating a good meal. *	.22	.06	.21	.06
30. Avoiding places where I drank.	-.19	.05	.16	**.70**
31. Thinking about all the people who have helped me.	-.09	**.54**	.07	.16
32. Saying I am well and wish to stay so.*	.20	.05	-.07	.38
33. Going to sleep.	-.01	-.05	**.47**	.16

34. Remembering how it has affected my family.	-.01	**.72**	.02	-.06
35. Forcing myself to go to work.	.22	-.01	**.42**	-.08
36. Trying to face life instead of avoiding it.	**.43**	.06	.00	.13

*saturation < .40

Table 2. Summary of CFA indexes under assessment

	Factorial Structure	χ^2	DF	χ^2/DF	*p*	CFI	RMSEA
Face-to-Face	Litman, 1983	870.06	554	1.57	<.001	.857	.050
	Current reexamination	230.92	165	1.40	.001	.934	.041
Telephone counseling	Litman, 1983	778.825	554	1.41	<.001	.884	.043
	Current reexamination	224.54	165	1.36	.001	.943	.041

Table 3. Mean score, deviation, error and internal consistency among factors and groups

	Face-to-Face			Telephone		
Factor	Mean	SD	α	Mean	SD	α
F1 Positive Thinking	1.09	.64	.797	1.37	.66	.795
F2 Negative Thinking	1.01	.70	.782	1.14	.71	.748
F3 Distraction/ Avoidan	1.27	.80	.654	1.65	.80	.70
F4 Social Support	1.85	.83	.579	1.97	.77	.517

Table 4. Correlations between IDHEA and CBI factors to examine convergent validity

		IDHEA			CBI			
		F1	F2	F3	F1	F2	F3	F4
CBI	**F1 Positive Thinking**	.407**	.187**	.423**	1	.682**	.581**	.245**
	F2 Negative Thinking	.345**	.090	.392**	.682**	1	.549**	.283**
	F3 Distractio/ Avoidan	.387**	.112	.259**	.581**	.549**	1	.338**
	F4 Social Support	.203**	-.258**	.107	.245**	.283**	.338**	1

Table 5. Goodness-of-Fit Statistics for Tests of Invariance Across Telephone counselling and Face-to-Face: A Summary

Model	χ^2	df	χ^2/df	CFI	RMSEA	$\Delta\ \chi^2$	Δ df	Decision
Configural invariance (baseline model): Model 1	464.848	330	1.397	.938	.030	-	-	-
Full metric invariance: Model 2	477.712	345	1.385	.937	.029	12.864	15	Accept
Full metric and scalar invariance: Model 3	541.466	365	1.483	.916	.033	63.754*	20	Reject

*$p < .001$

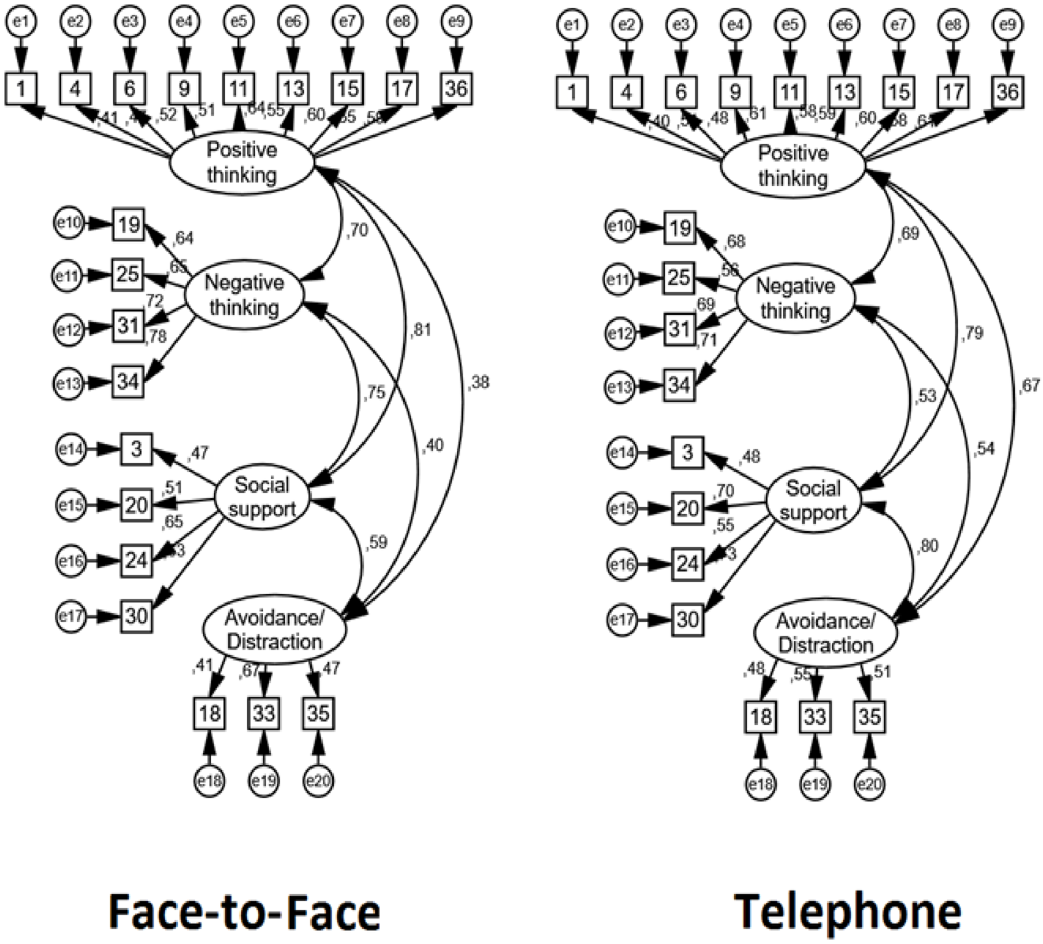

Fig 1. Four-factor solution for the CBI- Brazilian version in the CFA

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Brief Motivational Intervention, Telehealth and Coping Strategies: the new health technologies.

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ABSTRACT

Alcohol abuse is one of the main health problems in the world nowadays. The prospects are that the indices of the dependence of alcohol grow even more next years. The biggest challenge in treating alcoholism is relapse prevention. It is known that there is 50% relapse rate as early as the first 12 months. Keeping abstinent is a daunting challenge for anyone looking for the alcohol cessation. Different treatments have been developed of with the aim of helping this population. In this way the brief motivational intervention has been wide spread. It provides a fast service, which can be applied by several health trained professionals. Furthermore, the adoption of these information and communication technology (ICT) such as Telerehabilitation also may be associated to a lower cost and accessibility. Despite efforts in this area, relapse frequently occurs. However, little is known about the influence of these treatments in the coping strategies and self-efficacy of this population. Therefore the present study examined the relationships among motivational brief intervention (IBM) by telephone, self-efficacy, outcome (behavioural change) and coping strategies using of a Structural Equations Modeling. It is important that health professionals recognize the potential of these new health technologies and unveil the innumerable possibilities of using these tools as a strategy to help alcoholics.

INTRODUCTION

Alcoholism is a multifactorial disorder, usually there with periods unstable of abstinence and relapse, that demand of the people that quest the sobriety, skills to deal with everyday and risky situations that threaten the manteniment of abstinence.. Not surprisingly the alcohol is one of the world's three priority public health areas. The prevalence of alcohol use disorders is quite high, some 1 in 16 adults suffering from alcohol dependence in any given year (World Health Organization, 2012). The expectation is that, in 2020, the adults in of substance abuse is estimated to increase from 1.7 million to 4.4 million (Gfroerer, Penne, Pemberton, & Folsom, 2003). Naturally, there are a big attention in the search of how to help these people to stop the consumption. Nevertheless is very necessary not only care of abstinence but of the prevention of relapse. The alcohol be present daily in our lives and, perhaps because of this, the relapse is so common. Although there is no consumption without risk, consider that many people can drink without having a lack of control and others not, what makes this extremely frustrating for who is in the second group. It's possible that, oftentimes, the major obstacle it is of have a great shortage of coping skills or the plan quit drink not be accordingly with the patient's real necessity. The fact is that, although there is extensive efforts to reduce the harmful use of alcohol, the relapse still frequently occurs. What is known until then is that working to develop better the coping skills is very important but there is little understanding about what this population puts into practice in fact, as well as how interventions used as treatment may influence in the coping strategies.

In this context of care in health, new technologies have been developed with some interesting findings of efficacy (Yoo, Shah, Chih, & Gustafson, 2018;

Kazemi, Borsari, Levine, Li, Lamberson, & Matta, 2017, Khadjesari, Murray, Hewitt, Hartley, & Godfrey, 2011). In this respect, the telerehabilitation combined with counseling can contribute to a change in behavior such as withdrawal or abstinence maintenance, with special highlight to in populations that have financial difficult and of access. In a search for good results of treatment is essential understand a given behavior, its origins and consequences. Some studies about behavior corroborate this viewpoint (McCrady, 2017; Lac & Donaldson, 2017). In response to this demand the evaluation the self-efficacy has helped better know of the mechanisms of the relapse. Studies have reported the better self-efficacy the greater the chance of to stop drinking and this may be influenced by factors externs. The present study propose to examined the relationships among motivational brief intervention by telephone (BMI), self-efficacy, outcome and strategies coping, this could optimize treatment in alcoholism.

METHODS

Design and Setting

The study comprised a randomized clinical trial. Randomization was performed using a specific Microsoft software created for the procedures of the health counseling service by telephone, which enabled randomly assigning the sample subjects into the control (n= 61.3%) or BMI (n= 38.7%) groups. In the control group, the users received information and counseling on drugs, and screening scales and consumption assessment questionnaires were applied for a total follow-up time of approximately 40 min. In here the attendance was provided in the usual way and there was no room for a dynamic communication interaction. In the BMI group, the users received counseling using BMI (Prochaska, 1992, Miller, 2003) and screening scales and questionnaires to assess consumption were applied for a total follow-up time of 60 min. This study was conducted from February 2011 to July 2016 at the Serviço Nacional de Orientações e Informações sobre Prevenção do Uso de Drogas (Ligue 132-VIVAVOZ), a free telephone counseling service that provides advice and support to drug users and their families in all Brazil. Participants included those who called Ligue 132-VIVAVOZ to stop drinking and expressed a desire to participate in the study. Were excluded individuals who could not answer the questions as who could not be contacted for the follow-up interview at six months from this study.

Samples

A total of 173 alcohol users that intended to stop consumption were recruited when sought help in the telehealth service from a BMI program by telephone as shown in the consort flow diagram in Figure 1.

Ethics

The study was approved by the Committee of Research Ethics of the Federal University of Health Sciences of Porto Alegre – UFCSPA under protocol number. 38026014.0.0000.5345.

Measures

Questionnaire of sociodemographic information: questions about gender, age, marital status, education, and family income.

Self-Efficacy: to evaluate the participants' self-efficacy was applied a scale analog of 1 to 10 points that asked "how much felt confident about stopping using alcohol". A value equal to or greater than 8 was considered a good self-efficacy.

Coping Behaviours Inventory – CBI-20 a brief version for alcohol users in Brazil (Constant, et al, 2014): adapted to be applied to the Brazilian population (Constant et al, 2014). The inventory has 20 items related to coping strategies to avoid situations of risk for the consumption of alcoholic beverages. This instrument was developed from reports of alcoholic patients who described in detail the methods used to prevent relapses and classifies the coping strategies of 4 factors: F1-positive thinking; F2-negative thinking; F3-distraction/ avoidance; and F4- social support. The answer refers to the frequency with which a given strategy is used on the Likert scale: 0=Usually, 1=Often, 2=Sometimes, and 3=Never. The factor score is obtained by adding up the answers of the total raw score or by dividing the total sum by the number of items to obtain an average. Lower scores mean the strategies were used more frequently.

For application of the questionnaires, BMI and data collection the service trained the students from different areas of health (counselors) based on from the Medical Education Model for the Prevention and Treatment of Alcohol Use Disorders (Manwell, et al, 2006). To ensure the quality and standardization of the care provided they supervised by masters and doctoral level health professionals. Besides that, the counselors were evaluated monthly and rigorously through the application of the Behavior Change Counseling Index (BECCI) (Lane, et al, 2005).

After the first attendance, where users combined a date of stopping use of alcohol, was send a letter for both groups (control and BMI) with the support material and confirming the dates of the subsequent calls (1, 3, and 7 days as well as 1, 2, 3 and 6 months after the self-established alcohol cessation date). Proactive contact was established with the patient in case of not return the call the Ligue 132- VIVAVOZ service.

Data Analysis

Analyses were performed using the SPSS-21.0, and AMOS-Graphics. In the characterization of the sample statistics descriptive were used (measures of central tendency and dispersion, frequency distribution and percentage).

The Internal consistency was measured through Cronbach's α. Moreover homogeneity was also assessed. In this way, the brief structure the CBI (CBI-20) adapted for brazilian population (Constant, 2014) was examine in this work in terms of CFA. The study also measured the appropriateness of model which occurred through the correlation matrix, Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. For the rotation of the factors a Promax option was chosen since the factors correlated and an overlap across them is suggested. In order to evaluate the model fit pre and post BMI, was examined the chi-square within the incremental fit indices, the comparative fit index (CFI) whose values range from between 0 and 1 and the reference value is .90 and finally, within parsimony adjustment indices, the error of the root mean square approximation (RMSEA) where the smaller the value, the better the fit, the reference value being .05. (Byrne et al.,1989; Hooper et al., 2008; Kelloway, 1998; Yoon, & Uysal, 2005; Van et al., 1997; Jhöreskog, 1993; Satorra & Saris, 1985; Bentler, 1990; Bollen, 1989; Rigdon, 1996). A one way ANOVA was conducted in terms of CBI factors and groups.

To examine the relationships among BMI, self-efficacy, outcome and strategies coping, was used method of the model of structural equations (SEM). This model can analyze complex interactions between distant and immediate causes, as well as the impact of effect mediators and so-called confounding variables. Considered statistical technique similar the regression, however, more accurate, because it examines linear causal relationships among variables, while simultaneously accounting for measurement error (Conti, et al 2017; Kupek, 2014).

RESULTS

A total of 173 individual's were enrolled in a BMI program by telephone. Of this was 78% were men, with mean age of 32.9 (SD = 10.3), 32% marital status (had no stable relationship), as to the level of education 32.6 % had less than 9 years of schooling and 29.7% had between 10 and 13 years of schooling, 77% were working and 67.7% had a monthly income of US$300.

The Internal consistency for CBI-20 the database in the pre treatment showed values $\alpha = 0.85$ and homogeneity was between 0.10 to 0.61 and post treatment showed values $\alpha = 0.86$ and homogeneity was between 0.14 to 0.60.

The appropriateness of model proposed pre BMI showed KMO indices, 0.85, and Bartlett sphericity test $X^2_{(df = 190)}$=944.52, p <.000 and post BMI showed good KMO indices, 0.86, and Bartlett sphericity test $X^2_{(df = 190)}$=1017.57, p <.000, demonstrates that there are adequate properties for the realization of CFA. The percentage of explained variance was 56.77.

The results goodness of fit pre and post treatment can be observed at Table 1 highlighting that the goodness of fit presented optimal values for the post treatment: $\chi 2/df=1.32$, $p=.001$, CFI=.93,IFI=.93, TLI=.91, RMSEA=.043. In the ANOVA showed no statistical significant differences were found for the PRE and POST moment across groups regarding coping strategies. However, the negative thinking approached the significance level ($p=.058$).

The standardized parameters of the suggested model are shown in Figure 2. The SEM revealed significant interaction between groups (randomized: IBM x control) in regards to self-efficacy and outcome as well as demonstrated the relation of coping strategies in outcome and vice-versa. As expected, Pre moment did not show effects of situation on efficacy or coping, The Post moment did: Efficacy showed a statistically significant effect on Situation ($p>.001$), as well as group ($p<.001$) and Negative Thinking ($p<.05$).

DISCUSSION AND CONCLUSIONS

The hypothetical structural model showed very good fit to the data. This study revealing, first hand, of the evaluation of a model of relationship between BMI, self-efficacy, outcome and coping strategies.

The effects of BMI on self-efficacy as well as outcome disposes a good base of scientific evidence (MacKillop, et al, 2018, Säfsten, et al, 2017, Constant et al.; 2016; 3, Bisch et al., 2011; Lancaster & Stead, 2005). However, does not there are studies that reference these aspects together with the influence of coping strategies in relation to outcome. Understanding this relation fomented the possibility to format the follow-up in a way more efficient as well as to facilitate the approach to relapse prevention. In addition, instigate possible to investigations in order to better demonstrated how BMI acts in relation to coping strategies and the opposite also, because not was the objective of this work.

One of the points positive of the study is that this sample was recruited from all the Brazilian regions, with this also has improved the generalizability because succeeded in encompassing a broad population of users alcohol since it the contact was accessible (by telephone), free of costs and anonymous. Furthermore, by using telephone there is a greater chance of participants being more sincere (Molfenter, et al., 2015; Mckay, et al., 2004) and had access to personalized service. Moreover, the follow-up design used did allow us to draw consist conclusions. Therefore his model might also be used for the other populations of alcoholics provided that the necessary psychometric assessments are carried out.

As regards data was observed that the majority of the participants were male, which is in agreement with the reality of other studies (Galduroz & Caetano, 2004; World Health Organization, 2017; Andrade, Duarte and Oliveira, 2010). As the age was young adults mean age 32 years, with low level of education (60% 13 years of schooling) and had no a stable relationship. Flame attention to the fact that 77% (n= 133) had a work activity. This is not really commonly found in alcohol users profiling studies. Perhaps it is by the consumption pattern of these individuals that it could be better investigated in another research proposal.

In the course of follow-up can note that initially the sample not showed differences the model but post noted a power correlation and statistically significant effect between BMI (randomized individuals) and self- efficacy ($p<.001$) and outcome ($p<.001$). In addition also a power correlation between the coping strategies (negative thinking) and outcome.

In summary, one notes that here the intervention based on BMI may exert direct influences on outcome (stop or not stop drinking) as well as of the self-efficacy, but also indirect ones, through the change in frequency of the use of coping strategies in relation to negative thinking. In order to of achieving success of stop drinking, with a better preparation for risk situations and possible prevention of relapse, the model provides encouraging results. When well applied, with continued professional training and monitoring, can provide an improvement in the development of coping skills. The limitation that was observed is that was only in the factor negative thinking. Perhaps enlarge the sample can provide an investigation the relationship with other CBI-20 factors. Nevertheless, the strong point is that were clinicals individuals, reproduce a result that is as close to reality as possible. However, is known the difficulty to keep clients for 6 months of follow-up justifying the size of the sample presented.

Finally, it may be affirm that, surely, in this study the individuals who were advised by BMI had a better self-efficacy and outcome, and indirectly also benefited from an increase in the frequency of use of coping strategies. Remember the bigger the repertoire of strategies, the greater the chance of not relapse. In addition, we must emphasize the need for coping evaluations frequently since this tends to change during the stopping process.

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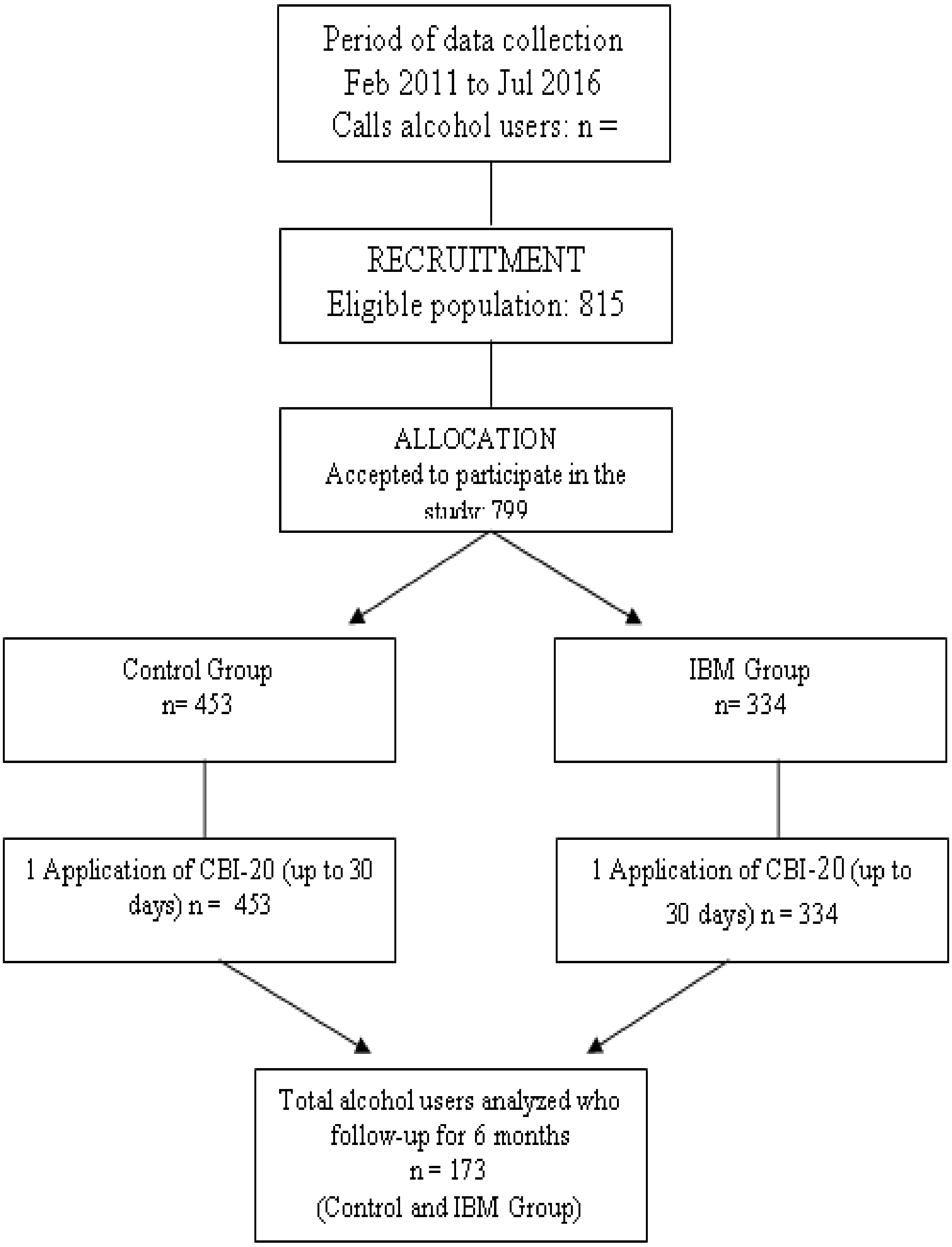

Figure 1. Flow diagram of eligibility, randomization, treatment, follow-up and inclusion in the analyzes of alcohol users in follow-up at "Ligue 132-VIVAVOZ" for 6 months.

Table 1. Evaluation of the model fit pre and post BMI

	Factorial Structure	χ^2	DF	χ^2/DF	*p*	CFI	RMSEA
Pre IBM	CBI-20	307.94	221	1.39	.000	0.88	.048
Post IBM	CBI-20	291,65	221	1.32	.001	0.93	.043

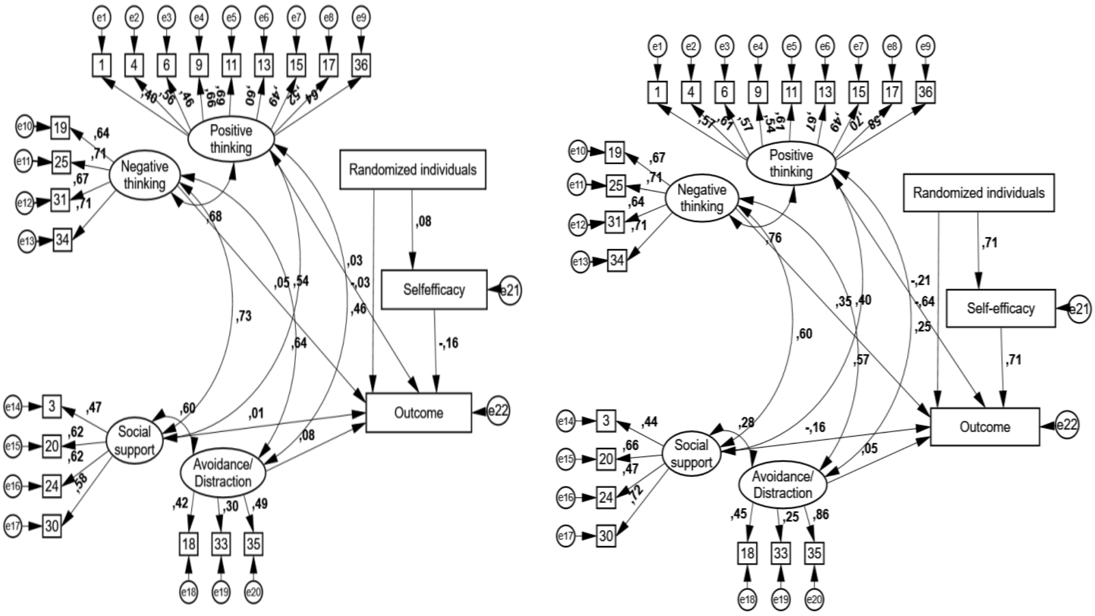

Figure 2. Representation of the CBI-20 model Pre and Post BMI by SEM: the interaction among randomized, self-efficacy, outcome and coping strategies.

5 Conclusões:

Usuários de álcool, após seis meses de acompanhamento via telefônica onde foram aconselhados por Intervenção Breve Motivacional (IBM) ou intervenção mínima, usaram mais frequentemente estratégias de pensamento positivo em ambos os grupos. Quanto ao perfil dos participantes foram identificados três perfis: grupo IBM com mudança de comportamento (pararam ou reduziram consumo), grupo Controle com mudança de comportamento e grupo Controle sem mudança de comportamento. Isso sugere que uma variável subjacente pode operar no processo normal de cessação do consumo de álcool, e o tratamento aplicado está mais relacionado a essa variável. Assim, são necessárias maiores investigações a fim de compreender por que um subgrupo de participantes do grupo controle conseguiu parar e o outro não e porque isso não aconteceu no grupo IBM. Bem como, o que este fato pode propor para fins de tratamento. No início do acompanhamento a estratégia mais utilizada foi o apoio social. Em contraste, as estratégias cognitivas (pensamento positivo) foram mais utilizadas no final do seguimento.

Quanto de avaliação da estrutura fatorial do *Coping Behaviours Inventory (CBI)* e o teste de sua invariância em grupos no Brasil, na análise fatorial exploratória, na análise fatorial confirmatória e na análise multigrupo a solução de 4 fatores foi confirmada com um modelo revisado para a remoção de alguns itens. Esta nova versão apresentou melhores índices do que as versões anteriores desenvolvidas nos últimos 30 anos, que foram reformuladas de 60 itens. Além disso, a nova versão CBI-20 mostrou validade convergente com o questionário IDHEA e não demonstrou diferenças entre o aconselhamento por telefone e os participantes presenciais em um nível métrico após uma análise multigrupo. Sendo assim sua aplicabilidade é viável face a face ou por telefone.

Finalmente, no decorrer do acompanhamento, pode-se notar que, inicialmente, a amostra não mostrou diferenças no modelo proposto, mas pós acompanhamento observou uma correlação de poder e efeito estatisticamente significativo entre IBM (indivíduos randomizados) e autoeficácia (p <0,001) e resultado (p <. 001). Além disso, também uma correlação de poder entre as estratégias de enfrentamento (pensamento negativo) e resultado. Pode-se afirmar que, neste estudo, os indivíduos que foram acompanhados por meio do aconselhamento pela IBM tiveram uma melhor autoeficácia e resultado, e indiretamente também se beneficiaram de um aumento na frequência de uso de estratégias de *coping*.

Parece interessante, neste campo, ampliar esforços no entendimento dos processos e mecanismos de mudança associados aos resultados positivos em diferentes modalidades de tratamento. Supõe-se que a pesquisa possibilite ferramentas para o desenvolvimento da base de evidências para modelos de aconselhamento em serviços telefônicos sobre prevenção e tratamento de álcool, e possibilite desenvolvimento em ambientes mais amplos.

6. **ANEXOS**

6.1 Aprovação do Comitê de Ética

UNIVERSIDADE FEDERAL DE
CIÊNCIAS DA SAÚDE DE
PORTO ALEGRE

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Identificação das Estratégias de Coping Utilizadas por Usuários de Álcool no Processo de Abstinência em um Serviço de Aconselhamento Telefônico

Pesquisador: Maristela Ferigolo

Área Temática:

Versão: 1

CAAE: 26511914.0.0000.5345

Instituição Proponente: Universidade Federal de Ciências da Saúde de Porto Alegre

Patrocinador Principal: ASSOCIACAO MARIO TANNHAUSER DE ENSINO, PESQUISA E ASSISTENCIA - AMTEPA

DADOS DO PARECER

Número do Parecer: 562.644

Data da Relatoria: 20/03/2014

Apresentação do Projeto:

O desenvolvimento de habilidades para lidar com as situações de risco para o usuário é fundamental para manter a abstinência e prevenir a recaída. Identificar as estratégias utilizadas pelos usuários de álcool em cada período da abstinência (desintoxicação, abstinência aguda e manutenção) é fundamental para adaptação das mesmas para a necessidade do momento em que o usuário se encontra. O objetivo do estudo é verificar a efetividade da intervenção breve motivacional (IBM) em relação às estratégias de enfrentamento (coping) utilizadas por dependentes de álcool e/ou outras drogas que ligaram para o Serviço Nacional de Orientações e Informações sobre a Prevenção do Uso de Drogas- VIVAVOZ na intenção de parar o uso de álcool. Será realizado um ensaio clínico randomizado após a leitura do Termo de Consentimento Livre e Esclarecido (TCLE) pelo consultor do VIVAVOZ. A randomização permitirá que os indivíduos sejam alocados aleatoriamente para os grupos intervenção e Controle. O grupo intervenção receberá a intervenção breve motivacional por telefone juntamente com o material informativo e o grupo controle receberá somente o material informativo.Os seguimentos para identificação das estratégias de coping serão realizados por meio de ligação pró ativa (o serviço ligará para o usuário) em 7 dias, 3 e 6 meses, após a primeira ligação, para aplicar o CBI. A população do estudo incluirá 585 usuários de álcool e/ou outras drogas que ligarem para o Serviço Nacional de

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Orientações e Informações sobre a Prevenção do Uso de Drogas ¿ VIVAVOZ das cinco regiões brasileiras, com a intenção de parar o consumo de álcool, no período de março de 2014 a março de 2016.

Objetivo da Pesquisa:

Objetivo Primário:

Verificar a efetividade da IBM em relação as estratégias de enfrentamento (coping) utilizadas por dependentes de álcool que ligaram para o Serviço Nacional de Orientações e Informações sobre a Prevenção do Uso de Drogas- VIVAVOZ na intenção de parar o uso.

Objetivo Secundário:

Identificar quais estratégias de enfrentamento (coping) são utilizadas por dependentes de álcool durante a desintoxicação.Identificar quais estratégias de enfrentamento (coping) são utilizadas por dependentes de álcool durante a abstinência aguda. Identificar quais estratégias de enfrentamento (coping) são utilizadas por dependentes de álcool durante a manutenção da abstinência. Estimar o número de indivíduos que se mantiveram abstinentes do consumo de álcool após aconselhamento telefônico por 6 meses. Verificar se a IBM proporciona um aumento na frequência das estratégias de enfrentamento comparando-se o grupo controle e o grupo IBM após aconselhamento telefônico por 6 meses.

Avaliação dos Riscos e Benefícios:

Riscos:

A participação neste estudo poderá trazer um desconforto emocional mínimo, pois será conversado a respeito dos problemas relacionados ao uso de substâncias psicoativas, mas nenhum desconforto físico ou custo financeiro.

Benefícios:

Quanto aos benefícios, é esperado que os usuários de álcool e/ou drogas aprendam a lidar com as complexas questões referentes à dependência química.

Comentários e Considerações sobre a Pesquisa:

Pesquisa realizada por ligações telefônicas, inclusive aplicação do TCLE.

Considerações sobre os Termos de apresentação obrigatória:

Termos apresentados adequadamente. TCLE não possui o título da pesquisa, creio que para não ser muito longo,pois será apenas lido pelo consultor do VIVA VOZ. O TCLE está bem estruturado e com linguagem acessível.

Recomendações:

Os retornos telefônicos ao usuário do sistema devem ser feitos sem identificação de que o serviço que entra em contato é o Viva Voz, quando não for o próprio usuário quem estiver atendendo o telefonema.

Conclusões ou Pendências e Lista de Inadequações:

Projeto adequado em relação aos aspectos éticos.

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

Considerações Finais a critério do CEP:

Término do projeto 01/2016.
De acordo com o parecer do Relator.

PORTO ALEGRE, 20 de Março de 2014

Assinador por:
José Geraldo Vernet Taborda
(Coordenador)

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Validação da Escala Coping Behaviours Inventory - CBI para a População Brasileira

Pesquisador: Maristela Ferigolo
Área Temática:
Versão: 4
CAAE: 38026014.0.0000.5345
Instituição Proponente: Universidade Federal de Ciências da Saúde de Porto Alegre
Patrocinador Principal: ASSOCIACAO MARIO TANNHAUSER DE ENSINO, PESQUISA E ASSISTENCIA - AMTEPA

DADOS DO PARECER

Número do Parecer: 1.233.495

Apresentação do Projeto:
Devido ao aumento de demandas referentes ao tratamento de dependentes de álcool e as dificuldades destes em se manter abstinentes
abordagens visando à prevenção da recaída tem sido utilizadas. A manutenção da abstinência está relacionada ao manejo de situações de risco e
as estratégias de coping utilizadas para evitar a volta ao uso. Estratégias de coping são definidas como comportamentos utilizados pelo indivíduo
para lidar com situações difíceis. No intuito de compreender melhor os comportamentos e dificuldades destes indivíduos instrumentos de avaliação
podem ser utilizados. Instrumentos de coleta de dados são importantes para avaliação de ações dos indivíduos e a validação destes garante a
confiabilidade dos resultados. O estudo tem como objetivo realizar a validação do Coping Behaviours Inventory (CBI) para a população brasileira por
meio de um estudo instrumental descritivo, quantitativo com delineamento transversal. O CBI possibilita a identificação de estratégias utilizadas por
usuários de álcool e consequentemente propicia um planejamento mais adequado e eficaz da assistência a estes indivíduos. Conhecer as situações

Recomendações:

Não se aplica.

Conclusões ou Pendências e Lista de Inadequações:

Não se aplica.

Considerações Finais a critério do CEP:

Parecer ratificado pelo Colegiado.

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Outros	formulario_de_encaminhamento.pdf	30/10/2014 20:50:46		Aceito
Outros	folha_de_rosto.pdf	30/10/2014 20:51:33		Aceito
Projeto Detalhado / Brochura Investigador	PROJETO_VALIDAÇÃO.doc	30/10/2014 20:52:01		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	termo_de_consentimento_HCPA.pdf	30/10/2014 20:52:25		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	termo_de_consentimento_instituições.pdf	30/10/2014 20:57:41		Aceito
Outros	termo_de_anuencia_casa_da_graça.pdf	30/10/2014 20:58:21		Aceito
Outros	termo_de_anuencia_casa_mosaico.pdf	30/10/2014 20:58:42		Aceito
Outros	termo_de_anuencia_cruz_vermelha.pdf	30/10/2014 20:59:08		Aceito
Outros	termo_de_anuencia_hcpa.pdf	30/10/2014 20:59:45		Aceito
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Outros	termo_de_anuencia_ufcspa.pdf	30/10/2014 21:01:01		Aceito
Outros	termo_de_compromisso.pdf	30/10/2014 21:01:33		Aceito
Outros	cv_lattes_Maristela.pdf	30/10/2014 21:08:15		Aceito
Outros	cv_lattes_Helena.pdf	30/10/2014		Aceito

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Outros	cv_lattes_Helena.pdf	21:08:51		Aceito
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Outros	cv_lattes_Mariana_Benchaya.pdf	30/10/2014 21:10:43		Aceito
Outros	cv_lattes_Margareth.pdf	30/10/2014 21:12:12		Aceito
Outros	relatorio_de_pesquisa.pdf	30/10/2014 21:15:49		Aceito
Folha de Rosto	folha_de_rosto.pdf	30/10/2014 21:16:31		Aceito
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_395327.pdf	30/10/2014 21:18:12		Aceito
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_458818ET.pdf	27/01/2015 13:45:24		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	lattes_lidiani.pdf	29/04/2015 10:39:05		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	lattes_paulo.pdf	29/04/2015 10:39:22		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	lattes_graziely.pdf	29/04/2015 10:39:39		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	tcle_hcpa.pdf	30/04/2015 22:49:03		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	tcle_ufcspa.pdf	30/04/2015 22:49:42		Aceito
Projeto Detalhado / Brochura Investigador	PROJETO_VALIDAÇÃO_HCPA.doc	30/04/2015 22:50:03		Aceito
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_507237E2.pdf	30/04/2015 23:13:21		Aceito
Outros	CARTA_RESPOSTA_PENDENCIAS_HCPA.pdf	15/08/2015 01:50:03		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE_ALTERAÇÕES_SOLICITADAS_CEP_HCPA.doc	15/08/2015 01:55:45		Aceito
TCLE / Termos de	termo_de_consentimento_UFCSPA.	15/08/2015		Aceito

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Assentimento / Justificativa de Ausência	pdf	01:56:18		Aceito
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Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_539962_E3.pdf	15/08/2015 02:04:49		Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

PORTO ALEGRE, 17 de Setembro de 2015

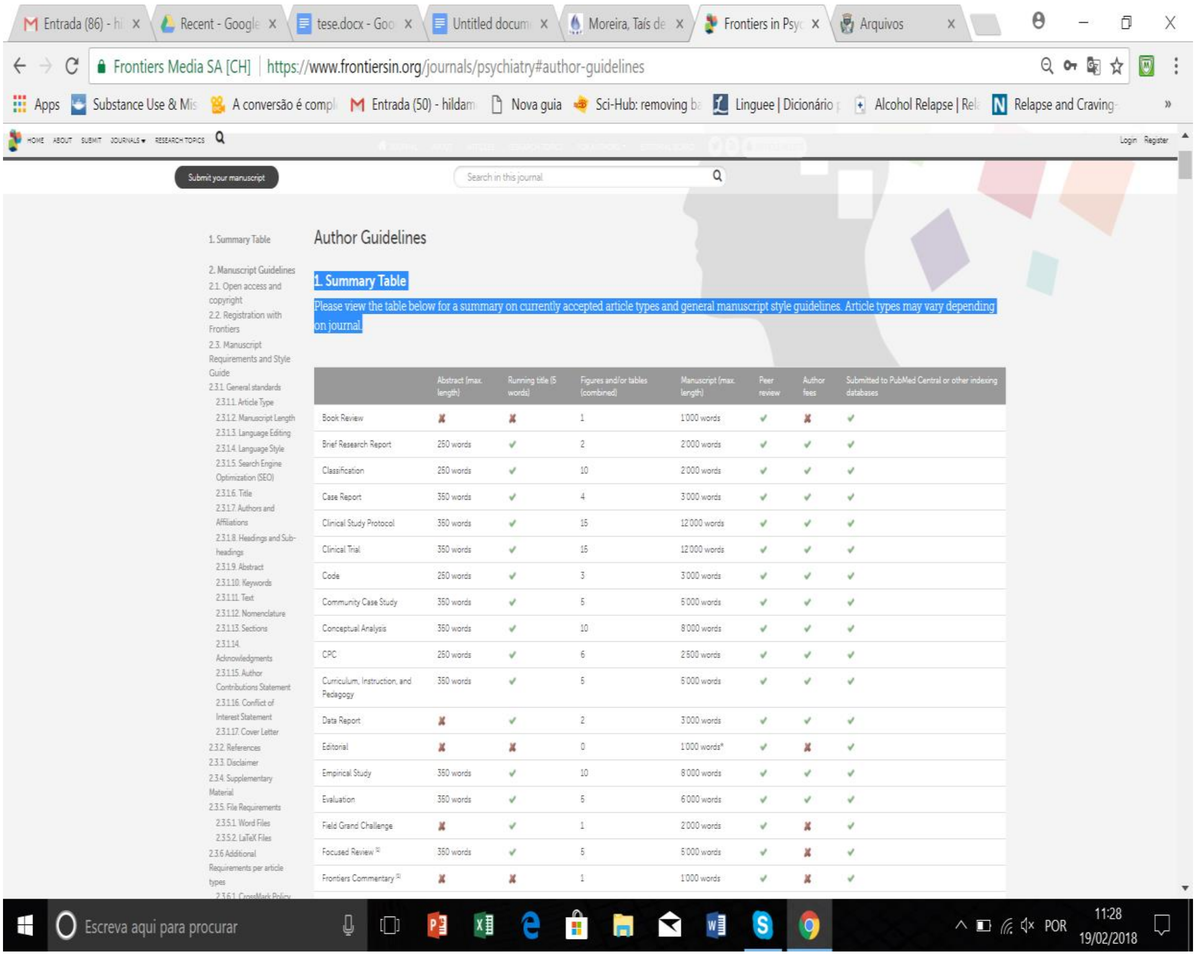
Assinado por:
Julia Fernanda Semmelmann Pereira Lima
(Coordenador)

6.2 Normas Revistas

Author Guidelines

1. Summary Table

Please view the table below for a summary on currently accepted article types and general manuscript style guidelines. Article types may vary depending on journal.

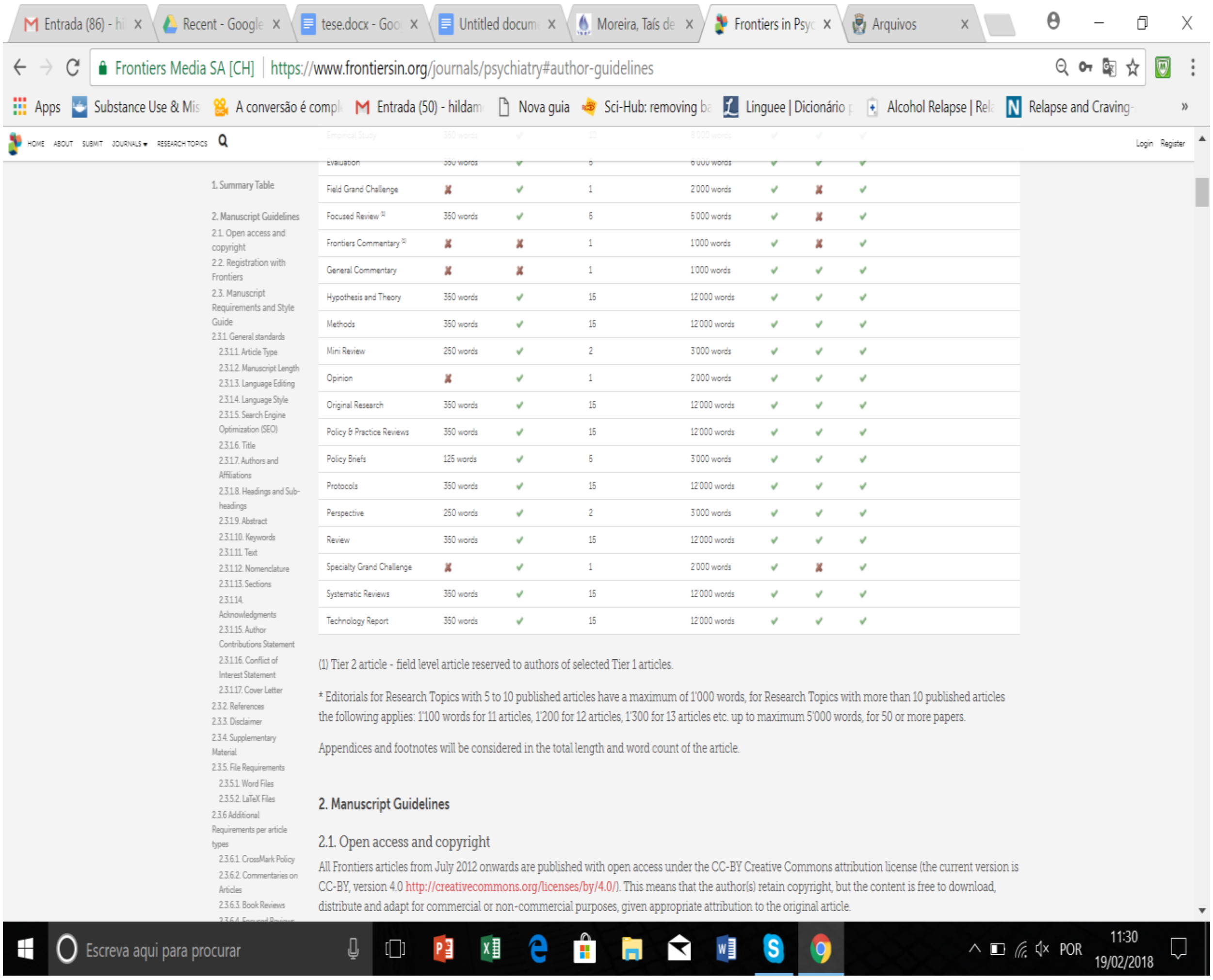


Author Guidelines

1. Summary Table

Please view the table below for a summary on currently accepted article types and general manuscript style guidelines. Article types may vary depending on journal.

	Abstract (max. length)	Running title (5 words)	Figures and/or tables (combined)	Manuscript (max. length)	Peer review	Author fees	Submitted to PubMed Central or other indexing databases
Book Review	✘	✘	1	1'000 words	✔	✘	✔
Brief Research Report	250 words	✔	2	2'000 words	✔	✔	✔
Classification	250 words	✔	10	2'000 words	✔	✔	✔
Case Report	350 words	✔	4	3'000 words	✔	✔	✔
Clinical Study Protocol	350 words	✔	15	12'000 words	✔	✔	✔
Clinical Trial	350 words	✔	15	12'000 words	✔	✔	✔
Code	250 words	✔	3	3'000 words	✔	✔	✔
Community Case Study	350 words	✔	5	5'000 words	✔	✔	✔
Conceptual Analysis	350 words	✔	10	8'000 words	✔	✔	✔
CPC	250 words	✔	6	2'500 words	✔	✔	✔
Curriculum, Instruction, and Pedagogy	350 words	✔	5	5'000 words	✔	✔	✔
Data Report	✘	✔	2	3'000 words	✔	✔	✔
Editorial	✘	✘	0	1'000 words*	✔	✘	✔
Empirical Study	350 words	✔	10	8'000 words	✔	✔	✔
Evaluation	350 words	✔	5	6'000 words	✔	✔	✔
Field Grand Challenge	✘	✔	1	2'000 words	✔	✘	✔
Focused Review [1]	350 words	✔	5	5'000 words	✔	✘	✔
Frontiers Commentary [1]	✘	✘	1	1'000 words	✔	✘	✔



Evaluation	350 words	✔	5	6'000 words	✔	✔	✔
Field Grand Challenge	✘	✔	1	2'000 words	✔	✘	✔
Focused Review [1]	350 words	✔	5	5'000 words	✔	✘	✔
Frontiers Commentary [1]	✘	✘	1	1'000 words	✔	✘	✔
General Commentary	✘	✘	1	1'000 words	✔	✔	✔
Hypothesis and Theory	350 words	✔	15	12'000 words	✔	✔	✔
Methods	350 words	✔	15	12'000 words	✔	✔	✔
Mini Review	250 words	✔	2	3'000 words	✔	✔	✔
Opinion	✘	✔	1	2'000 words	✔	✔	✔
Original Research	350 words	✔	15	12'000 words	✔	✔	✔
Policy & Practice Reviews	350 words	✔	15	12'000 words	✔	✔	✔
Policy Briefs	125 words	✔	5	3'000 words	✔	✔	✔
Protocols	350 words	✔	15	12'000 words	✔	✔	✔
Perspective	250 words	✔	2	3'000 words	✔	✔	✔
Review	350 words	✔	15	12'000 words	✔	✔	✔
Specialty Grand Challenge	✘	✔	1	2'000 words	✔	✘	✔
Systematic Reviews	350 words	✔	15	12'000 words	✔	✔	✔
Technology Report	350 words	✔	15	12'000 words	✔	✔	✔

(1) Tier 2 article - field level article reserved to authors of selected Tier 1 articles.

* Editorials for Research Topics with 5 to 10 published articles have a maximum of 1'000 words, for Research Topics with more than 10 published articles the following applies: 1'100 words for 11 articles, 1'200 for 12 articles, 1'300 for 13 articles etc. up to maximum 5'000 words, for 50 or more papers.

Appendices and footnotes will be considered in the total length and word count of the article.

2. Manuscript Guidelines

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2. Manuscript Guidelines

2.1. Open access and copyright

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2.2. Registration with Frontiers

Please note that the corresponding and all submitting authors MUST register with Frontiers before submitting an article. You must be logged in to your personal Frontiers Account to submit an article.

For any co-author who would like his/her name on the article abstract page and PDF to be linked to a Frontiers profile on the Loop network, please ensure to register before the final publication of the paper.

2.3. Manuscript Requirements and Style Guide

2.3.1. General standards

2.3.1.1. Article Type

Frontiers requires authors to carefully select the appropriate article type for their manuscript, and to comply with the article-type descriptions defined in the journal's "Article Types", which can be seen from the "For Authors" menu on any Frontiers journal page. **Please pay close attention to the word count limits.***Focused Reviews, Frontiers Commentaries and Grand Challenge* articles are invited by the chief editor and cannot be part of any Frontiers Research Topic. Unless you were contacted by the chief editor or the editorial office regarding the submission of a paper selected for tier 2 promotion, do not submit a Focused Review or a Frontiers Commentary - instead, submit a Review or a General Commentary.

Please see Additional Requirements for specific article types including Focused Reviews, General Commentaries, Protocols and Data Reports.

2.3.1.2. Manuscript Length

Frontiers encourages its authors to closely follow the article word count lengths given in the Summary Table. The manuscript length includes only the main body of the text, footnotes and all citations within it, and excludes abstract, section titles, figure and table captions, funding statements, acknowledgments and references in the bibliography. Please indicate the number of words and the number of figures included in your manuscript on the first page.

2.3.1.3. Language Editing

Frontiers requires manuscripts submitted to meet international standards for English language to be considered for publication.

For authors who would like their manuscript to receive language editing or proofing to improve the clarity of the manuscript and help highlight their research, Frontiers recommends the language-editing services provided by the following external partners:

Editage

Frontiers is pleased to recommend language-editing service provided by our external partner Editage to authors who believe their manuscripts would benefit from professional editing. These services may be particularly useful for researchers for whom English is not the primary language. They can help to improve the grammar, syntax and flow of your manuscripts prior to submission. Frontiers authors will receive a 10% discount by visiting the following link: http://editage.com/frontiers/

The Charlesworth Group

Frontiers recommends the Charlesworth Group Author Services, who has a long standing track record in language editing and proofing. This is a third-party service for which Frontiers authors will receive a discount by visiting the following link:http://www.charlesworthauthorservices.com/~Frontiers.

Note that sending your manuscript for language editing does not imply or guarantee that it will be accepted for publication by a Frontiers journal. Editorial decisions on the scientific content of a manuscript are independent of whether it has received language editing or proofing by the partner services, or other services.

2.3.1.4. Language Style

The default language style at Frontiers is American English. If you prefer your article to be formatted in British English, please specify this on your manuscript first page. For any questions regarding style Frontiers recommends authors to consult the Chicago Manual of Style.

2.3.1.5. Search Engine Optimization (SEO)

There are a few simple ways to maximize your article’s discoverability. Follow the steps below to improve search results of your article:

Include a few of your article's keywords in the title of the article;
Do not use long article titles;

Pick 5 to 8 keywords using a mix of generic and more specific terms on the article subject(s);
Use the maximum amount of keywords in the first 2 sentences of the abstract;
Use some of the keywords in level 1 headings.

2.3.1.6. Title

The title is written in title case, centred, and in 16 point bold Times New Roman font at the top of page.

The title should be concise, omitting terms that are implicit and, where possible, be a statement of the main result or conclusion presented in the manuscript. Abbreviations should be avoided within the title.

Witty or creative titles are welcome, but only if relevant and within measure. Consider if a title meant to be thought-provoking might be misinterpreted as offensive or alarming. In extreme cases, the editorial office may veto a title and propose an alternative.

Authors should try to avoid, if possible:

Titles that are a mere question without giving the answer.
Unambitious titles, for example starting with "Towards", "A description of", "A characterization of", "Preliminary study on".
Vague titles, for example starting with "Role of...", "Link between...", "Effect of..." that do not specify the role, link, or effect.
Include terms that are out of place, for example the taxonomic affiliation apart from species name.
For Corrigenda, Book Reviews, General Commentaries and Editorials, the title of your manuscript should have the following format:

"Corrigendum: Title of original article"
"Book Review: Title of book"
General Commentaries

"Commentary: Title of original article" (This does not apply to Frontiers Commentaries)
"Response: Commentary: Title of original article"
"Editorial: Title of Research Topic"
For article types requiring it, the running title should be a maximum of 5 words in length. (see Summary Table)

2.3.1.7. Authors and Affiliations

All names are listed together and separated by commas. Provide exact and correct author names as these will be indexed in official archives. Affiliations should be keyed to the author's name with superscript numbers and be listed as follows: Laboratory, Institute, Department, Organization, City, State abbreviation (USA, Canada, Australia), and Country (without detailed address information such as city zip codes or street names).

Example: Max Maximus, Department of Excellence, International University of Science, New York, NY, USA.

The Corresponding Author(s) should be marked with an asterisk. Provide the exact contact email address of the corresponding author(s) in a separate section.

Correspondence:

Dr. Max Maximus
maximus@gmail.com

If any authors wish to include a change of address, list the present address(es) below the correspondence details using a unique superscript symbol keyed to the author(s) in the author list.

2.3.1.8. Headings and Sub-headings

Except for special names (e.g. GABAergic), capitalize only the first letter of headings and subheadings. Headings and subheadings need to be defined in Times New Roman, 12, bold. You may insert up to 5 heading levels into your manuscript (not more than for example: 3.2.2.1.2 **Heading title**).

2.3.1.9. Abstract

As a primary goal, the abstract should render the general significance and conceptual advance of the work clearly accessible to a broad readership. In the abstract, minimize the use of abbreviations and do not cite references. The text of the abstract section should be in 12 point normal Times New Roman. See Summary Table for abstract requirement and length according to article type.

For Clinical Trial article types, please include the Unique Identifier and the URL of the publicly accessible website on which the trial is registered.

2.3.1.10. Keywords

All article types: you may provide up to 8 keywords; at least 5 are mandatory.

2.3.1.11. Text

The body text is in 12 point normal Times New Roman. New paragraphs will be separated with a single empty line. The entire document should be single-spaced and should contain page and line numbers in order to facilitate the review process. Your manuscript should be written using either LaTeX or MS-Word.

2.3.1.12. Nomenclature

The use of abbreviations should be kept to a minimum. Non-standard abbreviations should be avoided unless they appear at least four times, and defined upon first use in the main text. Consider also giving a list of non-standard abbreviations at the end, immediately before the Acknowledgments.
Equations should be inserted in editable format from the equation editor.
Gene symbols should be italicized; protein products are not italicized.

Chemical compounds and biomolecules should be referred to using systematic nomenclature, preferably using the recommendations by IUPAC.
We encourage the use of Standard International Units in all manuscripts.
Life Science Identifiers (LSIDs) for ZOOBANK registered names or nomenclatural acts should be listed in the manuscript before the keywords. An LSID is represented as a uniform resource name (URN) with the following format:
urn:lsid:::[:]
For more information on LSIDs please see Inclusion of Zoological Nomenclature section.

2.3.1.13. Sections

Your manuscript is organized by headings and subheadings. For Original Research Articles, Clinical Trial Articles, and Technology Reports the section headings should be those appropriate for your field and the research itself.

For Original Research Articles, it is recommended to organize your manuscript in the following sections or their equivalents for your field:

Introduction

Succinct, with no subheadings.

Material and Methods

This section may be divided by subheadings. This section should contain sufficient detail so that when read in conjunction with cited references, all procedures can be repeated. For experiments reporting results on animal or human subject research, an ethics approval statement should be included in this section (for further information, see section Materials and Data Policies)

Results

This section may be divided by subheadings. Footnotes should not be used and have to be transferred into the main text.

Discussion

This section may be divided by subheadings. Discussions should cover the key findings of the study: discuss any prior art related to the subject so to place the novelty of the discovery in the appropriate context; discuss the potential short-comings and limitations on their interpretations; discuss their integration into the current understanding of the problem and how this advances the current views; speculate on the future direction of the research and freely postulate theories that could be tested in the future.

For further information, please see Additional Requirements for specific article types including Focused Reviews, General Commentaries, Case Reports and Data Reports amongst others or you can check the descriptions defined in the journal’s "Article Types", which can be seen from the "For Authors" menu on any Frontiers journal page.

2.3.1.14. Acknowledgments

This is a short text to acknowledge the contributions of specific colleagues, institutions, or agencies that aided the efforts of the authors.

2.3.1.15. Author Contributions Statement

The Author Contributions Statement can be up to several sentences long and should briefly describe the tasks of individual authors. Please list only 2 initials for each author, without full stops, but separated by commas (e.g. JC, JS). In the case of two authors with the same initials, please use their middle initial to differentiate between them (e.g. REW, RSW). The Author Contributions Statement should be included at the end of the manuscript before the References.

2.3.1.16. Conflict of Interest Statement

A Conflict of Interest Statement needs to be included at the end of the manuscript before the references. Here, the authors need to declare whether or not the submitted work was carried out in the presence of any personal, professional or financial relationships that could potentially be construed as a conflict of interest. For more information on conflicts of interest, see our Editorial Policies.

2.3.1.17. Cover Letter

When you submit your manuscript, you will be required to add a cover letter directed to the Editor.

Please indicate, in the first paragraph, the title of the manuscript, the article type, the Journal and specialty to which the manuscript is being submitted, and whether it is part of a Research Topic. You must also state that the manuscript has not been submitted for publication elsewhere; any closely related works submitted for consideration in other publications should be noted and you may be asked to provide a copy.

It is essential as well that you provide a short description of the significance of the manuscript. While Frontiers evaluates articles using objective criteria, rather than impact or novelty, your cover letter should frame the question(s) you have addressed in your work in the context of the current body of knowledge, providing evidence that the findings - whether positive or negative - contribute to progress in your research discipline. This will assist the Chief Editors to determine whether your manuscript fits within the scope of a specialty as defined in its mission statement; a detailed cover letter will also facilitate the identification of the Editors and Reviewers most appropriate to evaluate your work, ultimately expediting your manuscript's initial consideration.

2.3.2. References

All citations in the text, figures or tables must be in the reference list and vice-versa. The references should only include articles that are published or accepted. Data sets that have been deposited to an online repository should be included in the reference list, include the version and unique identifier when available. For accepted but unpublished works use "in press" instead of page numbers. Unpublished data, submitted manuscripts, or personal communications should be cited within the text only, for the article types that allow such inclusions. Personal communications should be documented by a letter of permission. Website urls should be included as footnotes. Any inclusion of verbatim text must be contained in quotation marks and clearly reference the original source.

The following formatting styles are meant as a guide, as long as the full citation is complete and clear, Frontiers referencing style will be applied during typesetting.

SCIENCE, ENGINEERING, and HUMANITIES: For articles submitted in the domains of SCIENCE, ENGINEERING and HUMANITIES please apply Author-Year system for in-text citations.

Reference list: provide the names of the first six authors followed by et al. and doi when available.

In-text citations should be called according to the surname of the first author, followed by the year. For works by 2 authors include both surnames, followed by the year. For works by more than 2 authors include only the surname of the first author, followed by et al., followed by the year. For Humanities and Social Sciences articles please include page numbers in the in-text citations.

Article in a print journal:

Sondheimer, N., and Lindquist, S. (2000). Rnq1: an epigenetic modifier of protein function in yeast. Mol. Cell. 5, 163-172.

Article in an online journal:

Tahimic, C.G.T., Wang, Y., Bikle, D.D. (2013). Anabolic effects of IGF-1 signaling on the skeleton. Front. Endocrinol. 4:6. doi: 10.3389/fendo.2013.00006

Article or chapter in a book:

Sorenson, P. W., and Caprio, J. C. (1998). "Chemoreception," in The Physiology of Fishes, ed. D. H. Evans (Boca Raton, FL: CRC Press), 375-405.

Book:

Cowan, W. M., Jessell, T. M., and Zipursky, S. L. (1997). Molecular and Cellular Approaches to Neural Development. New York: Oxford University Press.

Abstract:

Hendricks, J., Applebaum, R., and Kunkel, S. (2010). A world apart?Bridging the gap between theory and applied social gerontology. Gerontologist 50, 284-293. Abstract retrieved from Abstracts in Social Gerontology database. (Accession No. 50360869)

Patent:

Marshall, S. P. (2000). Method and apparatus for eye tracking and monitoring pupil dilation to evaluate cognitive activity. U.S. Patent No 6,090,051. Washington, DC: U.S. Patent and Trademark Office.

Data:

Perdiguero P, Venturas M, Cervera MT, Gil L, Collada C. Data from: Massive sequencing of Ulms minor's transcriptome provides new molecular tools for a genus under the constant threat of Dutch elm disease. Dryad Digital Repository. (2015) http://dx.doi.org/10.5061/dryad.ps837

Theses and Dissertations:

Smith, J. (2008) Post-structuralist discourse relative to phenomological pursuits in the deconstructivist arena. [dissertation/master's thesis]. [Chicago (IL)]: University of Chicago

For examples of citing other documents and general questions regarding reference style, please refer to the Chicago Manual of Style.

Frontiers Science Endnote Style

Frontiers Science, Engineering and Humanities Bibstyle

HEALTH, PHYSICS AND MATHEMATICS: For articles submitted in the domain of HEALTH or the journal Frontiers in Physics and Frontiers in

Applied Mathematics and Statistics please apply the Vancouver system for in-text citations.

Reference list: provide the names of the first six authors followed by et al. and doi when available.

In-text citations should be numbered consecutively in order of appearance in the text – identified by Arabic numerals in the parenthesis for Health articles, and in square brackets for Physics and Mathematics articles.

Article in a print journal:

Sondheimer N, Lindquist S. Rnq1: an epigenetic modifier of protein function in yeast. Mol Cell (2000) 5:163-72.

Article in an online journal:

Tahimic CGT, Wang Y, Bikle DD. Anabolic effects of IGF-1 signaling on the skeleton. Front Endocrinol (2013) 4:6. doi: 10.3389/fendo.2013.00006

Article or chapter in a book:

Sorenson PW, Caprio JC. "Chemoreception,". In: Evans DH, editor. The Physiology of Fishes. Boca Raton, FL: CRC Press (1998). p. 375-405.

Book:

Cowan WM, Jessell TM, Zipursky SL. Molecular and Cellular Approaches to Neural Development. New York: Oxford University Press (1997). 345 p.

Abstract:

Christensen S, Oppacher F. An analysis of Koza's computational effort statistic for genetic programming. In: Foster JA, editor. Genetic Programming. EuroGP 2002: Proceedings of the 5th European Conference on Genetic Programming; 2002 Apr 3–5; Kinsdale, Ireland. Berlin: Springer (2002). p. 182–91.

Patent:

Pagedas AC, inventor; Ancel Surgical R&D Inc., assignee.Flexible Endoscopic Grasping and Cutting Device and Positioning Tool Assembly. United States patent US 20020103498 (2002).

Data:

Perdiguero P, Venturas M, Cervera MT, Gil L, Collada C. Data from: Massive sequencing of Ulms minor's transcriptome provides new molecular tools for a genus under the constant threat of Dutch elm disease. Dryad Digital Repository. (2015) http://dx.doi.org/10.5061/dryad.ps837

Theses and Dissertations:

Smith, J. (2008) Post-structuralist discourse relative to phenomological pursuits in the deconstructivist arena. [dissertation/master's thesis]. [Chicago (IL)]: University of Chicago

For examples of citing other documents and general questions regarding reference style, please refer to Citing Medicine.

Frontiers Health Endnote Style

Frontiers Health and Physics Bibstyle

2.3.3. Disclaimer

Any necessary disclaimers which must be included in the published article should be clearly indicated in the manuscript.

2.3.4. Supplementary Material

Frontiers journals do not support pushing important results and information into supplementary sections. However, data that are not of primary importance to the text, or which cannot be included in the article because it is too large or the current format does not permit it (such as movies, raw data traces, power point presentations, etc.) can be uploaded during the submission procedure and will be displayed along with the published article.

The Supplementary Material can be uploaded as Data Sheet (word, excel, csv, cdx, fasta, pdf or zip files), Presentation (power point, pdf or zip files), Supplementary Image (cdx, eps, jpeg, pdf, png or tif), Supplementary Table (word, excel, csv or pdf), Audio (mp3, wav or wma) or Video (avi, divx, flv, mov, mp4, mpeg, mpg or wmv).

Supplementary material is not typeset so please ensure that all information is clearly presented, the appropriate caption is included in the file and not in the manuscript, and that the style conforms to the rest of the article. For Supplementary Material templates (LaTex and Word) see Supplementary Material for Frontiers.

2.3.5. File Requirements

2.3.5.1. Word Files

If working with Word please use Frontiers Word.

2.3.5.2. LaTeX Files

If you wish to submit your article as LaTeX, we recommend our Frontiers LaTeX templates. These templates are meant as a guide, you are of course welcome to use any style or formatting and Frontiers journal style will be applied during typesetting.

When submitting your article please ensure to upload all relevant manuscript files including:

tex file
PDF
.bib file (if the bibliography is not already included in the .tex file)
Figures should be included in the provided pdf. In case of acceptance, our Production Office might require high resolution files of the figures included in the manuscript in eps, jpg or tif format. In order to be able to upload more than one figure at a time, save the figures (labeled in order of appearance in

the manuscript) in a zip file, and upload them as ‘Supplementary Material Presentation’.

To facilitate the review process, please include a Word Count at the beginning of your manuscript, one option is teXcount which also has an online interface.

During the Interactive Review, authors are encouraged to upload versions using ‘Track Changes’. Editors and Reviewers can only download the PDF file of the submitted manuscript .

2.3.6. Additional Requirements per article types

2.3.6.1. CrossMark Policy

CrossMark is a multi-publisher initiative to provide a standard way for readers to locate the current version of a piece of content. By applying the CrossMark logo Frontiers is committing to maintaining the content it publishes and to alerting readers to changes if and when they occur. Clicking on the CrossMark logo will tell you the current status of a document and may also give you additional publication record information about the document.

2.3.6.2. Commentaries on Articles

For General Commentaries, the title of your manuscript must have the following format: "Commentary: Title of the original article". At the beginning of your Commentary, please provide the citation of the article commented on. Authors commenting on a Frontiers article must submit their commentary for consideration to the same Journal and Specialty as the original article.

Rebuttals may be submitted in response to Commentaries; our limit in place is one commentary and one response. Rebuttals should be submitted as General Commentary articles and the title should have the following format: "Response to: Commentary: Title of the original article".

2.3.6.3. Book Reviews

For book Reviews, you must provide the full book details at the beginning of the article in this format: "A book review on: Full book reference"

2.3.6.4. Focused Reviews

For Tier 2 invited **Focused Reviews**, to shape the paper on the importance of the research to the field, we recommend structuring the Review to discuss the paper's Introduction, Materials and Methods, Results and Discussion. In addition the authors must submit a short biography of the corresponding author(s). This short biography has a maximum of 600 characters, including spaces

A picture (5 x 5 cm, in *.tif or *.jpg, min 300 dpi) must be submitted along with the biography in the manuscript and separately during figure upload.

Focused Reviews highlight and explain key concepts of your work. Please highlight a minimum of four and a maximum of ten key concepts in bold in your manuscript and provide the definitions/explanations at the end of your manuscript under “Key Concepts”. Each definition has a maximum of 400 characters, including spaces.

2.3.6.5 Systematic Reviews

For Systematic Reviews, the following article structure applies.

Title: include systematic review/meta-synthesis/meta-analysis as appropriate in the title
Each of the sections should include specific sub-sections as follows

Abstract

Background
Methods
Results
Conclusions

Introduction

Rationale

Objectives

Research question

Methods

Study design

Participants, interventions, comparators

Systematic review protocol

Search strategy

Data sources, studies sections and data extraction

Data analysis

Results

Provide a flow diagram of the studies retrieved for the review

Study selection and characteristics

Synthesized findings

Risk of bias

Discussion

Summary of main findings

Limitations

Conclusions

2.3.6.6. Data Reports

For Data Reports, please make sure to follow these additional specific guidelines.

1. The data sets (defined as a collection of data that contains individual data units organized in a standardized reusable format, including pre-processed or raw data) must be deposited in a public repository for long-term data preservation prior to submission of the Data Report. The data set(s) is to be fixed and made publicly available upon publication of the Data Report.

2. Our data sharing policy also requires that the dataset be made available to the Frontiers editors and reviewers during the review process of the manuscript. Prior to submission of your Data Report manuscript, please ensure that the repository you have selected supports confidential peer-review. If it does not, we recommend that the authors deposit the datasets to figshare or Dryad Digital Repository for the peer-review process. The data set(s) can then be transferred to another relevant repository before final publication, should the article be accepted for publication at Frontiers.

Note that it is the authors' responsibility to maintain the data sets after publication of the Data Report. Any published Frontiers Data Report article will be considered for retraction should the data be removed from the final selected repository after publication or the access become restricted.

3. The submitted manuscript must include the following details:

Detailed cover letter (including a link to the data set)
Name of the data set
Name of the database/repository where the data set has been submitted
Link to the data set for confidential peer-review (which can be updated after acceptance, prior to publication once the data is made public)
Description of how the data was acquired, data collection period
Filters applied to the data
Overview of the data files and their formats
Reference to and/or description of the protocols or methods used to collect the data
Information on how readers may interpret the data set and reuse the data
All these elements will be peer-reviewed and are required for the publication of the Data Report.

Any future updates to the data set(s) should be deposited as independent versions in a repository and the relevant information may be published as General Commentaries linked on the Frontiers website to the initial Data Report.

Any detailed analyses or new scientific insights relating to the Data Report can be submitted as independent research articles which can also be linked on the Frontiers website to the Data Report article. The protocols and methodology used to collect the data can also be submitted as Methods articles.

2.3.6.7. Case Reports

For Case Reports the following sections are mandatory:

Introduction

Include symptoms at presentation, physical exams and lab results.

Background

This section may be divided by subheadings. Include history and review of similar cases.

Discussion

This section may be divided by subheadings. Include diagnosis and treatment.

Concluding Remarks

2.3.6.8. Policy & Practice Reviews

For Policy and Practice Reviews, the following article structure applies:

Abstract
Introduction
Sections on assessment of policy/guidelines options and implications
Actionable Recommendations and Conclusions

2.3.6.9. Policy Briefs

For Policy Briefs, the following article structure applies:

Abstract (bullet point format)
Introduction
Sections on Policy Options and Implications
Section on Actionable Recommendations
Conclusions

2.3.6.10. Protocols

For Protocols articles, please make sure to follow these additional specific guidelines.

The submitted manuscript must include the following sections:

An Abstract.

An Introduction outlining the protocol and summarizing its possible applications.

A Materials and Equipment section providing a list of reagents or other materials and/or equipment required to carry out the protocol. For basic-science protocols, the formulation of any solutions, e.g. buffers, should be clearly indicated in the Materials and Equipment section.

A Stepwise Procedures section listing, stepwise, the stages of the protocol. The timing of each step or related series of steps should be indicated, as should points at which it is possible to pause or halt the procedure without adversely influencing the outcome. For steps requiring repeated measurements, details of precision and accuracy should be presented. Limits of detection or quantification should also be stipulated where appropriate.

An Anticipated Results section describing, and illustrating with figures, where possible, the expected outcome of the protocol. Any analytical software or methods should be presented in detail in this section, as should possible pitfalls and artifacts of the procedure and any troubleshooting measures to counteract them. These last may also be described in an optional Notes section.

Code or training data sets referenced by the protocol and useful in its execution should be hosted in an online repository; their accession numbers or other stable identifiers should be referenced in the Anticipated Results.

The following additional information should be presented in the cover letter accompanying your manuscript:

Significance of the protocol and references to any relevant primary research manuscript(s) in which it has been previously employed.
Any advance represented by the method compared with other, similar methods.
Appropriateness of the manuscript to the Specialty Section to which it has been submitted.
Associate Editors with suitable expertise to handle the manuscript.

2.3.6.11. Code

The code should be novel and presented in human-readable format, adhere to the standard conventions of the language used (variable names, indentation, style and grammar), be well documented (comments in source), be provided with an example data set to show efficacy, be compilable or executable free of errors (stating configuration of system used).

The code should only call standard (freely accessible) libraries or include required libraries, and include a detailed description of the use-scenarios, expected outcomes from the code and known limitations of the code.

Please therefore make sure to provide access to the following upon submission:

Abstract explicitly including the language of code

Keywords including the language of the code in the following format:"code:language"” e.g.: "code:matlab"

Cover Letter including the utility of the code and its language

Main Text including:

code description
application and utility of the code
link to an accessible online code repository where the most recent source code version is stored and curated (with an associated DOI for retrieval after review)
access to test data and readme files
methods used
example of use
known issues
licensing information (Open Source licenses recommended)
Compressed Archive (.zip) of the reviewed version of the code as supplementary material (.zip archives are currently available under the "Presentation" dropdown menu).

2.4. Figure and Table Guidelines

2.4.1. General Style Guidelines for Figures

The maximum number of figures and tables for all article types are shown in the Summary Table. Frontiers requires figures to be submitted individually, in the same order as they are referred to in the manuscript, the figures will then be automatically embedded at the end of the submitted manuscript. Kindly ensure that each table and figure is mentioned in the text and in numerical order.

For graphs, there must be a self-explanatory label (including units) along each axis. For figures with more than one panel, panels should be clearly indicated using labels (A), (B), (C), (D), etc. However, do not embed the part labels over any part of the image, these labels will be added during typesetting according to Frontiers journal style. Please note that figures which are not according to the guidelines will cause substantial delay during the production process.

Permission must be obtained for use of copyrighted material from other sources (including re-published/adapted/modified/partial figures and images from the internet). It is the responsibility of the authors to acquire the licenses, to follow any citation instructions requested by third-party rights holders, and cover any supplementary charges.

Frontiers takes concerns regarding image manipulation seriously. We request that no individual features within an image are modified (e.g. enhanced, obscured, moved, recycled, removed or added). Image processing methods (e.g. changes to the brightness, contrast or color balance) must be applied to every pixel in the image and the changes should not alter the information illustrated in the figure. Where cropped images of blots are shown in figures, a full scan of the entire original gel(s) must be submitted as part of the supplementary material. Where control images are re-used for illustrative purposes, this must be clearly declared in the figure legend. Image grouping and splicing must be clearly stated in the manuscript and the figure text.

For additional information, please see our Editorial Policies: 3.5 Image Manipulation.

2.4.2. General Style Guidelines for Tables

Tables should be inserted at the end of the manuscript. If you use a word processor, build your table in word. If you use a LaTeX processor, build your table in LaTeX. An empty line should be left before and after the table.

Please note that large tables covering several pages cannot be included in the final PDF for formatting reasons. These tables will be published as supplementary material on the online article abstract page at the time of acceptance. The author will notified during the typesetting of the final article if this is the case. A link in the final PDF will direct to the online material.

For additional information, please see our Editorial Policies: 3.5 Image Manipulation.

2.4.3. Figure and Table Requirements

Legends

Figure and table legends are required to have the same font as the main text (12 point normal Times New Roman, single spaced). Legends should be preceded by the appropriate label, for example "Figure 1" or "Table 4". Figure legends should be placed at the end of the manuscript (for supplementary images you must include the caption with the figure, uploaded as a separate file). Table legends must be placed immediately before the table. Please use only a single paragraph for the legend. Figure panels are referred to by bold capital letters in brackets: (A), (B), (C), (D), etc.

Image Size

Figure images should be prepared with the PDF layout in mind, individual figures should not be longer than one page and with a width that corresponds to 1 column or 2 columns.

All articles are prepared using the 2 column layout: 2 column articles can contain images 85 mm or 180 mm wide.

2.4.4. Format

The following formats are accepted:

TIFF (.tif) TIFF files should be saved using LZW compression or any other non-lossy compression method. JPEG (.jpg)

EPS (.eps) EPS files can be uploaded upon acceptance

Color Image Mode

Images must be submitted in the color mode RGB.

Resolution Requirements

All images must be uploaded separately in the submission procedure and have a resolution of **300 dpi at final size**. Check the resolution of your figure by enlarging it to 150%. If the resolution is too low, the image will appear blurry, jagged or have a stair-stepped effect.

Please note saving a figure directly as an image file (JPEG, TIF) can greatly affect the resolution of your image. To avoid this, one option is to export the file as PDF, then convert into TIFF or EPS using a graphics software. EPS files can be uploaded upon acceptance.

Chemical Structures

Chemical structures should be prepared using ChemDraw or a similar program according to the guidelines given below:

Drawing settings: chain angle, 120° bond spacing, 18% of width; fixed length, 14.4 pt; bold width, 2.0 pt; line width, 0.6 pt; margin width 1.6 pt; hash spacing 2.5 pt. Scale 100%Atom Label settings: font, Arial; size, 8 pt.

Assign all chemical compounds a bold, Arabic numeral in the order in which the compounds are presented in the manuscript text. Figures containing chemical structures should be submitted in a size appropriate for incorporation into the manuscript.

Legibility

Figures must be legible. Check the following:

The smallest visible text is no less than 8 points in height, when viewed at actual size.
Solid lines are not broken up.
Image areas are not pixilated or stair stepped.
Text is legible and of high quality.
Any lines in the graphic are no smaller than 2 points width.

2.5. Funding disclosure

Details of all funding sources must be provided in the funding section of the manuscript including grant numbers, if applicable. All Frontiers articles are published with open access under the CC-BY Creative Commons attribution license. Articles published with Frontiers automatically fulfil or exceed the requirements for open access mandated by many institutions and funding bodies, including the National Institutes of Health, the Medical Research Council, Research Councils UK, and the Wellcome Trust. Frontiers submits funding data to the Open Funder Registry which is a funder identification service from CrossRef resulting from collaboration between scholarly publishers and funding agencies.

2.6. Materials and Data Policies

Frontiers is committed to open science and open data, and we strongly encourage authors to maximize the availability of data included in their articles by making generated data publicly available where possible, and ensuring that published data sets are cited in accordance with our data citation guidelines. We aim to achieve the best community standards regarding data availability, ensuring increased levels of transparency and reproducibility in our published articles.

Our policies on data availability are informed by community-driven standards, which Frontiers endorses, such as the Transparency and Openness (TOP) guidelines, and the joint declaration of data citation principles produced by FORCE 11.

2.6.1. Availability of Materials

Authors are strongly encouraged to make all materials used to conduct their research available to other researchers. Research materials necessary to enable the reproduction of an experiment should be clearly indicated in the Materials and Methods section. Relevant materials such as protocols, analytic methods, and study material should preferably be uploaded to an online repository providing a global persistent link/identifier. If this is not possible, authors are strongly encouraged to make this material available upon request to interested researchers, and this should be stated in the manuscript.

Resource Identification Initiative

Authors wishing to participate in the Resource Identification Initiative should cite antibodies, genetically modified organisms, software tools, data, databases, and services using the corresponding catalog number and RRID in your current manuscript. For more information about the project and for steps on how to search for an RRID, please click here.

2.6.2. Availability of Data

Frontiers requires that authors make all data relevant to the conclusions of the manuscript available to editors and reviewers during peer-review to enable complete and objective evaluation of the work described.

We strongly encourage authors to make the raw data supporting the conclusions of the manuscript available in publicly accessible repositories. To comply with best practice in their field of research, authors are required to make certain types of data available to readers at time of publication in specific stable, community-supported repositories such as those listed below. Authors are encouraged to contact our data availability office at datapolicy@frontiersin.orgprior to submission with any queries concerning data reporting.

2.6.3. Data Citation Guidelines

Authors are encouraged to cite all datasets generated or analyzed in the study. Where datasets are cited, they should be included in the references list to maximize future usability. The following format should be used:

[Dataset] Author names. (year) Data Title.Repository name.Version. Persistant identifier

2.6.4. Data Availability Statements

Frontiers requires that every published article contains a data availability statement detailing where the data supporting the conclusions of the manuscript can be found. This includes both data generated by the authors and data analyzed for the study. Submitted manuscripts that contain incomplete or incorrect statements will be prevented from entering the review process.

Datasets referred to in the data availability statement should be cited in accordance with our data citation guidelines, and should also be included in the statement.

Examples of acceptable statements

Datasets are in a publicly accessible repository:

The datasets [GENERATED/ANALYZED] for this study can be found in the [NAME OF REPOSITORY] [LINK]

Datasets are available on request:

The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

All relevant data is contained within the manuscript:

All datasets [GENERATED/ANALYZED] for this study are included in the manuscript and the supplementary files.

Restrictions apply to the datasets:

The datasets for this manuscript are not publicly available because: [VALID REASON]. Requests to access the datasets should be directed to [NAME, EMAIL].

Data has been obtained from a third party:

The data analyzed in this study was obtained from [SOURCE], the following licenses/restrictions apply [RESTRICTIONS]. Requests to access these datasets should be directed to [NAME, EMAIL].

No datasets were generated for this study

2.6.5. Recommended and Required Repositories

Authors are required to deposit the following data-types in public, community-supported repositories, such as those listed below, prior to publication of an associated Frontiers manuscript:

Data-type	**Recommended Repositories**	**Metadata Standard**
Genetic and genomic sequence (DNA/ RNA)^	GenBank DNA Data Bank of Japan (DDBJ) European Nucleotide Archive (ENA)	MiXS

Metagenomic sequence	EBI Metagenomics	MiXS
DNA and RNA trace or short-read sequencing data	NCBI Trace Archive NCBI Sequence Read Archive	MiXS
Genetic polymorphism data, including SNP and CNV data	dbSNP dbVar European Variation Archive DGVa	MiXS
Gene expression data; chromatin immunoprecipitation data (deep-sequencing or	ArrayExpress Gene Expression	MIAME / MINSEQE

microarray)	Omnibus (GEO)	
Data linking genotype to phenotype	dbGaP	
Protein sequence data	UniProt	
Proteome profiling data	PRIDE PeptideAtlas ProteomeXchange	MIAPE
Small molecule, protein, protein complex data structural data	Crystallography Open Database Cambridge	CIF

	Structural Database wwPDB (Protein DataBank) Electron Microscopy Databank	
Taxonomy data	Zoobank	

^ Genetic sequence variants should be annotated according to the guidelines established by the Human Variome Project.

Authors are encouraged to consider deposition in public, community-supported repositories of the data-types listed below:

Data-type	**Recommended Repositories**	**Metadata Standard**
Protein-protein interaction data	Database of Interacting Proteins (DIP)	MIMIx

Metabolite and metabolome profiling data	MetaboLights Human Metabolome Database	MSI
Small-molecule screening data, chemical compound data	PubChem	CIF
Flow cytometry data	Flow Repository	
Brain Imaging data / Neuroimaging data	OpenfMRI INDI NITRC NeuroVault	

	[Statistical maps]	
Trait data	TRY database	
Phenology data	National Phenology Network	
Any data	FigShare Dryad Digital Repository	None

2.6.6. Inclusion of Zoological Nomenclature

The International Code of Zoological Nomenclature, in a recent 2012 amendment to the 1999 Zoological Code, allows all electronic-only papers, such as those published by the Frontiers journals, to have valid new taxon names and nomenclatural acts. However, these new names or nomenclatural acts must be registered in ZOOBANK and have associated Life Science Identifiers (LSIDs). Registration must be done by the authors before publication. Should your manuscript include any zoological new taxon names and/or nomenclatural acts, please ensure that they are registered prior to final publication.

2.6.7. Inclusion of RNAseq Data

Studies employing RNASeq for comparative transcriptomic analyses must contain at least 3 biological replicates (unless otherwise justified). Each biological replicate should be represented in an independent library, each with a unique barcode if libraries are multiplexed for sequencing. Validation on a number of key transcripts highlighted in the study is also highly recommended.

Full data accompanying these experiments must be made available to reviewers at the time of submission in a freely accessible resource e.g the sequence read archive (SRA) or European Nucleotide Archive (ENA). Depending on the question addressed in a manuscript, de novo assemblies of transcriptomes may also require multiple replicates and assembled sequences together with sequence annotation must be made freely available e.g figshare or dryad.

2.7. Statistics

Frontiers requires that all statements concerning quantitative differences should be based on quantitative data and statistical testing. For example, if a quantitative statement is made regarding the abundance of a certain protein based on a western blot, we request that the blot be scanned and the abundance assessed quantitatively using the correct analytic software (e.g. ImageJ) and statistics in order to support that statement.

Statistics should/must be applied for independent experiments. The number of independent samples and the deviation parameters (e.g. Standard Error of the Mean, Standard Deviation, Confidence Intervals) should be clearly stated in the Methods or the Figure legends. In general, technical replicates within a single experiment are not considered to be independent samples. Where multiple comparisons are employed (e.g. microarray data or Genome-wide association studies), any analysis should correct for false positive results. Descriptions of statistical procedures should include the software and analysis used, and must be sufficiently detailed to be reproduced.

3. Additional Requirements

3. Editorial Policies and Publication Ethics

Frontiers' ethical policies are a fundamental element of our commitment to the scholarly community. These policies apply to all the Frontiers in journal series. Frontiers has been a member of the Committee of Publication Ethics since January 2015 and follows COPE guidelines where applicable.

3.1. Authorship and Author Responsibilities

Frontiers follows the International Committee of Medical Journal Editors guidelines which state that, in order to qualify for authorship of a manuscript, the following criteria should be observed:

Substantial contributions to the conception or design of the work; or the acquisition, analysis or interpretation of data for the work;
Drafting the work or revising it critically for important intellectual content;
Provide approval for publication of the content;
Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
Contributors, who do not meet these criteria, but nonetheless provided important contributions to the final manuscript should be included in the acknowledgements section. It is the authors responsibility to get written approval by persons named in the acknowledgement section. In order to provide appropriate credit to all authors, as well as assigning responsibility and accountability for published work, individual contributions should be specified as an Author Contributions statement. This should be included at the end of the manuscript, before the References. The statement should specify the contributions of all authors. You may consult the Frontiers manuscript guidelines for formatting instructions. Please see an example here:

AB, CDE and FG contributed conception and design of the study; AB organized the database; CDE performed the statistical analysis; FG wrote the first draft of the manuscript; HIJ, KL, AB, CDE and FG wrote sections of the manuscript. All authors contributed to manuscript revision, read and approved the submitted version.

The corresponding author takes primary responsibility for communication with the journal and editorial office during the submission process, throughout peer review and during publication. The corresponding author is also responsible for ensuring that the submission adheres to all journal requirements including, but not exclusive to, details of authorship, study ethics and ethics approval, clinical trial registration documents and conflict of interest declaration. The corresponding author should also be available post-publication to respond to any queries or critiques.

3.2. Research Integrity

Material submitted to Frontiers must comply with the following policies to ensure ethical publication of academic work:

Original content and duplicate publication: Frontiers only publishes original content. Authors confirm the submission of original content in the Terms & Conditions upon submission. Manuscripts submitted to Frontiers must not have been previously published or be under consideration for publication elsewhere, either in whole or in part. If an article has been previously submitted for publication elsewhere, Frontiers will only consider publication if the article has been definitively rejected by the other publisher(s) at the point of submission to Frontiers.

Redundant publication: Frontiers considers the submission and publication of very similar articles based on the same experiment or study to be unethical.

Fabrication and falsification: Frontiers opposes both the fabrication of data or images (i.e. fake or made up data) and the falsification of data or images (i.e. the intentional misrepresentation or deceptive manipulation of data).

Plagiarism: Plagiarism occurs when an author attempts to present previously published work as original content. Every manuscript submitted to Frontiers is screened for textual overlap by the software CrossCheck, powered by iThenticate. Manuscripts found to contain textual overlap are not considered for publication by Frontiers. For more details on what constitutes plagiarism, please see here.

We reserve the right to contact the affiliated institutions of authors, who have not acted according to good research and publication practices.

3.3. Translations

Frontiers accepts manuscript submissions that are exact translations of previously published work. This should be clearly stated upon manuscript submission, in the cover letter and in the manuscript. Permission from the original publisher and authors needs to be sought and also stated, and the relevant documents should be provided as supplementary data for verification by the Editor and the editorial office. The original work from which the manuscript has been translated should be clearly referenced.

"This is a ('language') language translation/reprint of ('insert title here') originally published in ('insert name here'). ('Insert name here') prepared this translation with support from (insert name of funding source, if any). Permission was granted by ('Insert name here')."

Please note that Frontiers may request copies of related publications if there are any concerns about overlap or possible redundancy.

3.4. Plagiarism and Duplication

Frontiers checks all submitted manuscripts for plagiarism and duplication, and publishes only original content. Those manuscripts where plagiarism or duplication is shown to have occurred will not be considered for publication in a Frontiers journal. It is required that all submissions must consist as far as possible of content that has not been published previously. In accordance with COPE guidelines, we expect that "original wording taken directly from publications by other researchers should appear in quotation marks with the appropriate citations." This condition also applies to an author's own work.

For submissions adapted from theses, dissertations, conference abstracts or proceedings papers, please see the following sections for more information.

Theses and Dissertations

Frontiers allows the inclusion of content which first appeared in an author's thesis so long as this is the only form in which it has appeared, is in line with the author's university policy, and can be accessed online. If the thesis is not archived online, it is considered as original unpublished data and thus is subject to the unpublished data restrictions of some of our article types. This inclusion should be noted in the Acknowledgements section of the manuscript and the thesis should be cited and referenced accordingly in the Reference list. For some examples, please check our in Manuscript Requirements and Style Guide at 2.3.1

Conferences, Proceedings and Abstracts

Manuscripts that first appeared as conference papers must be expanded upon if they are to be considered as original work. At least 30% of content must be original. Authors submitting such work are required to:

- Cite the conference in the Acknowledgements section, or the references section if applicable

- Seek permission for reuse of the published conference paper if the author does not hold the copyright (proof of permission should be submitted as supplementary material, or sent to editorial.office@frontiersin.org with the manuscript ID upon submission)

Blogs

Although permissible, extended manuscript content which previously appeared online in non-academic media, e.g. blogs, should be declared at the time of submission in a cover letter or in communication with the relevant editorial office for consideration.

3.5. Image Manipulation

Frontiers takes concerns regarding image manipulation seriously. We request that no individual features within an image are modified (eg. enhanced, obscured, moved, recycled, removed or added). Image processing methods (e.g. changes to the brightness, contrast or color balance) must be applied to every pixel in the image and the changes should not alter the information illustrated in the figure. Where cropped images of blots are shown in figures, a full scan of the entire original gel(s) must be submitted as part of the supplementary material. Where control images are re-used for illustrative purposes, this must be clearly declared in the figure legend. If any form of image processing is legitimately required for the interpretation of the data, the software and the enhancement technique must be declared in the methods section of the manuscript. Image grouping and splicing must be clearly stated in the manuscript and the figure text. Any concerns raised over undeclared image modifications will be investigated and the authors will be asked to provide the original images.

3.6. Conflicts of Interest

A conflict of interest can be anything potentially interfering with, or that could reasonably be perceived as interfering with, full and objective peer review, decision-making or publication of articles submitted to Frontiers. Personal, financial and professional affiliations or relationships can be perceived as conflicts of interest.

All authors and members of Frontiers Editorial Boards are required to disclose any actual and potential conflicts of interest at submission or upon accepting an editorial or review assignment.

The Frontiers review system is designed to guarantee the most transparent and objective editorial and review process, and because handling editor and reviewers' names are made public upon the publication of articles, conflicts of interest will be widely apparent.

Failure to declare competing interests can result in the rejection of a manuscript. If an undisclosed competing interest comes to light after publication, Frontiers will take action in accordance with internal policies and Committee on Publication Ethics guidelines.

What Should I Disclose?

As an author, disclosure of any potential conflicts of interest should be done during the submission process. Consider the following questions and make sure you disclose any positive answers:

Did you or your institution at any time receive payment or services from a third party for any aspect of the submitted work?
Do you have financial relationships with entities that could be perceived to influence, or that give the appearance of potentially influencing, what you wrote in the submitted work?
Do you have any patents and copyrights, whether pending, issued, licensed and/or receiving royalties related to the research?
Do you have other relationships or activities that readers could perceive to have influenced, or that give the appearance of potentially influencing, what you wrote in the submitted work?
If you failed to disclose any of the potential conflicts of interest above during submission, or in case of doubt, please contact as soon as possible the Frontiers Editorial Office at editorial.office@frontiersin.org with the details of the potential conflicts.

The handling editors and reviewers will be asked to consider the following potential conflicts of interest before accepting any editing or review assignment:

FAMI	1. Are any of the authors a spouse or significant other, a member of the same family or a very close personal friend? Review Editors should also not be a member of the same family

LY	as the handling editor.
COLLABORATIONS	2. Are you currently hosting or have hosted a Frontiers Research Topic with any of the authors within the past 2 years? Are you currently hosting a Frontiers Research Topic with the Editor? 3. Are you currently collaborating or have you collaborated on a research project or a publication with any of the authors within the past 2 years? 4. Are you currently collaborating or have you collaborated with any of the authors as an advisor or in any other direct supervisory capacity in the past five years? 5. Are you currently collaborating or have you collaborated with any of the authors as a student or in any other direct subordinate capacity in the past five years? Note: Review Editors should not accept assignments if they have a close professional relationship with the handling editor, which in their view could affect the objectivity of the review.
AFFILIATION	6. Are you affiliated with the same institution as the editor? Are you affiliated with the same institution as any of the authors? If so, has this resulted in interactions, collaborations, or mutual interests with the authors that would compromise your impartiality in conducting this review? 7. Are you a current member of a committee or department that

	coincides with an affiliation with the editor or any of the authors?
FIN AN CI AL	8. Do you have a business or professional partnership with any author? 9. Do you have financial interests or business relations with any organization involved in this research or in the preparation of the manuscript? 10. Do you have any financial interest or competing interests in the content of the manuscript that might affect your ability to perform an objective review?

3.7. Bioethics

All research submitted to Frontiers for consideration must have been conducted in accordance with Frontiers guidelines on study ethics. In accordance with COPE guidelines, Frontiers reserves the right to reject any manuscript that editors believe does not uphold high ethical standards, even if authors have obtained ethical approval or if ethical approval is not required.

3.7.1. Studies involving animal subjects

All research involving regulated animals (i.e. all live vertebrates and higher invertebrates) must be performed in accordance with relevant institutional and national guidelines and regulations. Prior approval of research involving regulated animals must be obtained from the relevant institutional review board or ethics committee prior to commencing the study. Confirmation of this approval is required upon submission of a manuscript to Frontiers; authors must provide a statement identifying the full name of the ethics committee that approved the work. For most article types, this statement should appear in the Materials and Methods section. An example ethics statement:

This study was carried out in accordance with the recommendations of [name of guidelines], [name of committee]. The protocol was approved by the [name of committee].

Should the study be exempt from ethics approval, authors need to clearly state the reasons in the cover letter and manuscript. Studies involving privately owned animals should demonstrate the best practice veterinary care and confirm that informed consent has been granted by the owner/s, or the legal representative of the owner/s. Frontiers supports and encourages authors to follow the ARRIVE guidelines for the design, analysis and reporting of scientific research.

(http://www.veteditors.org/consensus-author-guidelines-on-animal-ethics-and-welfare-for-editors)

Humane Endpoints

All manuscripts describing studies where death is an endpoint will be subject to additional ethical considerations. Frontiers reserves the right to reject any manuscripts lacking in appropriate justification.

3.7.2. Studies involving human subjects

Research involving human subjects is expected to have been conducted in accordance with the World Medical Association's Declaration of Helsinki. Studies involving human participants must be performed in accordance with relevant institutional and national guidelines, with the appropriate institutional ethics committee's prior approval and informed written consent from all human subjects involved in the study including for publication of the results. Conformation of this approval is required upon submission of a manuscript to Frontiers; authors must provide a statement identifying the full name of the ethics committee that approved the work and confirm that study subjects (or when appropriate, parent or guardian) have given written informed consent. For most article types, this statement should appear in the Materials and Methods section. An example ethics statement:

This study was carried out in accordance with the recommendations of [name of guidelines], [name of committee]. The protocol was approved by the [name of committee]. All subjects gave ***written informed consent*** *in accordance with the Declaration of Helsinki.*

Should the study be exempt from ethics approval, authors need to clearly state the reasons in the cover letter and manuscript. In order to protect subject anonymity, identifying information should not be included in the manuscript unless such information is absolutely necessary for scientific purposes AND explicit approval has been granted by the subjects.

3.7.3. Inclusion of identifiable human data

Frontiers follows the ICMJE recommendations on the protection of research participants, which state that patients have a right to privacy that should not be violated without informed consent. We require non-essential identifiable details to be omitted from all manuscripts, and written informed consent will be required if there is any doubt that anonymity can be maintained.

It is the responsibility of the researchers and authors to ensure that these principles are complied with, including the obtaining of written, informed consent.

Written informed consent can be documented on a form provided by an institution or ethics committee, and it must clearly state how the identifiable data will be used. Frontiers also makes available its own form , which may be used for this purpose, but use of the Frontiers form is not required if a suitable alternative form of consent, meeting the ICMJE recommendations, is used. We consider it to be the authors' duty to encourage participants or patients whose consent for publication is required to read and understand the ICMJE guidelines, for their information prior to completing the consent form. Participants should also be encouraged to ask any questions and to ensure they are comfortable before they sign the consent form.

The completed consent forms should be stored by authors or their respective institutions, in accordance with institutional policies. Frontiers does not need to view the completed form, and this should not be included with the submission. The completed form should be made available on request from the editor or editorial office, both during the review process and post-publication.

The determination of what constitutes identifiable data lies with our editors and editorial office staff, and manuscripts may be rejected if the required consent documents cannot be provided. Please note that written informed consent for publication is required for all case report articles where the patient or subject is identified or identifiable.

3.8. Corrections

Frontiers recognizes our responsibility to correct errors in previously published articles. If it is necessary to communicate important, scientifically relevant errors or missing information, and compelling evidence can be shown that a major claim of the original article was incorrect, a Correction should be submitted detailing the reason(s) for and location(s) of the change(s) needed in the cover letter. Corrections can be submitted if a small portion of an otherwise reliable publication proves to be misleading, e.g. an error in a figure that does not alter conclusions OR an error in statistical data not altering conclusions OR mislabeled figures OR wrong slide of microscopy provided, or if the author / contributor list is incorrect when a deserving author has been omitted or somebody who does not meet authorship criteria has been included.

The title of the submission should have the following format: "Corrigendum: Title of original article". It is advised to use the corrigendum Word and LaTeX templates.

If the error was introduced during the publishing process, the Frontiers Production Office should be contacted.

3.9. Retractions

As a member of the Committee on Publication Ethics (COPE), Frontiers abides by their guidelines and recommendations in cases of potential retraction.

Frontiers also abides by two other key principles, as recommended by COPE:

Retractions are not about punishing authors.
Retraction statements should be public and linked to the original, retracted article.
While all potential retractions are subject to an internal investigation and will be judged on their own merits, Frontiers considers the following reasons as giving cause for concern and potential retraction:

Clear evidence that findings are unreliable, either as a result of misconduct (e.g. data fabrication) or honest error (e.g. miscalculation or experimental error)
Findings have previously been published elsewhere without proper attribution, permission or justification (i.e. cases of redundant publication)
Major plagiarism
The reporting of unethical research, the publication of an article that did not have the required ethics committee approval
Legal issues pertaining to the content of the article e.g. libellous content
Major authorship issues i.e. proven or strongly suspected cases of ghostwriting or sold ('gift') authorship
Politically-motivated articles where objectivity is a serious concern
The singling out of individuals or organizations for attack
Faith issues (e.g. intelligent design)
Papers that have made extraordinary claims without concomitant scientific or statistical evidence (e.g. pseudoscience)

Readers who would like to draw the editors' attention to published work that might require retraction should contact the authors of the article and write to the journal, making sure to include copies of all correspondence with authors.

Please find more details on our comments and complaints policy here

3.10. Support and Ethical concerns

In our commitment to continuously improve our website, we welcome your feedback, questions and suggestions. Please visit our Help Center to find guidance on our platform or contact us at support@frontiersin.org.

For any ethical concerns, please contact us at editorial.office@frontiersin.org.