ADRIANA SAÑUDO

USO DE ÁLCOOL E OUTRAS DROGAS ENTRE FREQUENTADORES DE BALADAS DE SÃO PAULO: DIAGNÓSTICO E INTERVENÇÃO

Tese apresentada à Universidade Federal de São Paulo – Escola Paulista de Medicina, para obtenção do título de Doutor em Ciências.

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Orientadora: Prof.ª Dr.ª Zila van der Meer Sanchez

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A luz da minha vida: **Giovanni** ... filho amado.

Qualquer coisa de valor duradouro
Leva tempo para se realizar.
Hoje eu entendo porque demorou tanto! Maktub ... tinha que acontecer...

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RESUMO

Achados internacionais mostram que o excesso de ingestão de bebidas alcoólicas e o consumo de outras drogas nas casas noturnas e bares está associado a mais episódios de agressão física, comportamento sexual de risco, violência sexual e acidentes de trânsito. “*Binge drinking*” ou “beber pesado episódico” é um padrão de consumo de álcool, especialmente arriscado, que tem despertado interesse internacional e que recentemente começou a ser investigado no Brasil e está aparentemente associado à população jovem e à freqüência regular às “baladas” (casas noturnas e certos tipos de bares). Em diversos países, desenvolver um ambiente de lazer noturno seguro se tornou sinônimo de reduzir o consumo excessivo de álcool, indiretamente reduzindo a violência, acidentes e outros agravos a saúde, que não afetam apenas o indivíduo, mas a sociedade. Com o objetivo de avaliar características do poliuso de drogas, comportamentos de risco associados ao consumo de álcool e testar uma intervenção via web para prevenção do abuso de álcool entre frequentadores de baladas na cidade de São Paulo, propôs-se um estudo com coletas de dados realizadas entre os anos de 2013 a 2014. Um inquérito de portal em uma amostra sistemática de 31 baladas permitiu que 2422 sujeitos fossem entrevistados à entrada das baladas e convidados a responder, no dia seguinte, um rastreamento via web utilizando o Alchool Use Disorders Identification Test (AUDIT). Um total de 1057 frequentadores preencheram os critérios de inclusão para participar do ensaio controlado randomizado (ECR) com coletas de dados nos tempos 0, 3, 6 e 12 meses e foram randomizados em dois grupos (intervenção e controle). A intervenção digital consistiu em expor os participantes a uma tela de feedback sobre seu consumo de álcool, caracterizando os riscos associados à quantidade consumida, valores gastos com bebidas, beber e dirigir, classificação do risco do AUDIT e dicas de redução de danos. Análise de classe latente e regressão logística multinomial ponderadas foram utilizadas para os dados do inquérito de portal. Para o ECR as análises foram estratificadas em dois grupos de acordo com a pontuação obtida no AUDIT no tempo inicial: “baixo risco” (escore de AUDIT<8) e “alto risco” (escore de AUDIT≥8) e utilizou-se análise de dados de painel através de modelos mistos generalizados para avaliar o efeito da intervenção ao longo do tempo. Para o poliuso de drogas verificou-se que o modelo de 3-classes (“não poliuso”, “poliuso moderado” e “poliuso elevado”) foi o que melhor descreveu o padrão de poliuso entre os

frequentadores e que as classes de poliuso apresentaram-se associadas ao estilo musical da balada. Para o comportamento de risco associado ao consumo de álcool também foi selecionado um modelo de 3 classes (baixo, médio e alto risco) e verificou-se que frequentadores pertencentes à classe “alto risco” foram mais frequentemente entrevistados nas baladas eletrônicas. Com relação ao ECR não foram observadas diferenças da intervenção em ambos os grupos de risco. No grupo alto risco houve redução significativa tanto do escore de AUDIT como da prevalência de “binge drinking” ao longo do tempo tanto no grupo intervenção como no controle. Entretanto o grupo de baixo risco aumentou seu escore AUDIT ao longo do tempo. Assim os resultados do ECR sugerem que apenas o grupo alto risco foi beneficiado por uma redução no consumo de álcool. O estudo mostra uma alta prevalência da prática de “*binge drinking*” e do comportamento beber e dirigir entre frequentadores de baladas evidenciando que são necessárias intervenções que conscientizem estes jovens, porém a intervenção via web de feedback normativo não se mostrou um programa universal para este público.

ABSTRACT

SUMÁRIO

APRESENTAÇÃO

MOTIVAÇÃO

A presente tese, intitulada *"Uso de álcool e outras drogas entre frequentadores de baladas de São Paulo: diagnóstico e intervenção",* apresenta alguns resultados do projeto de pesquisa *"Padrões de consumo de álcool e outras drogas em baladas: epidemiologia, etnografia e intervenção*", que posteriormente passou também a ser conhecido por "Balada Com Ciência" (http://www.baladacomciencia.com.br), coordenado pela Profª Drª Zila van der Meer Sanchez e financiado pela Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP). O projeto foi desenvolvido com a finalidade de compreender, dentro do campo da saúde coletiva, o cenário recreativo noturno da cidade de São Paulo preenchendo, em parte, a lacuna de dados científicos existentes sobre este tema no Brasil.

Em diversos países, desenvolver um ambiente de lazer noturno seguro se tornou sinônimo de reduzir especialmente o consumo excessivo de álcool, indiretamente reduzindo a violência, acidentes e outros agravos à saúde, gerando bem-estar aos indivíduos que saíram à busca de lazer e, indiretamente, para a coletividade que se protege de eventos traumáticos em sua vizinhança e famílias. No entanto, pouco tem sido estudado e divulgado no meio científico sobre a realidade das baladas brasileiras e os reais comportamentos de risco de seus frequentadores.

O diagnóstico do que ocorre na vida noturna de São Paulo é fundamental para a implantação de programas de prevenção e políticas públicas adequadas. Assim, o primeiro passo para o direcionamento de ações destinadas à população exposta, é o diagnóstico da realidade local. Para prevenir um risco, é necessário intervir sobre os processos que condicionam seu aparecimento, o que inevitavelmente leva à necessidade de conhecer os fatores e os mecanismos que podem explicar por que

eles são produzidos e o que o agrava ou o diminui. Notando as inúmeras evidências científicas, percebe-se que o consumo de álcool e outras drogas por jovens e os riscos associados a esse consumo adquirem grande parte de sua lógica e coerência no contexto recreativo noturno.

Os estudos sobre baladas têm despertado cada vez mais o interesse da comunidade científica internacional devido às inúmeras evidências que apontam para uma associação do consumo de álcool e de outras drogas nestes locais com à violência verbal, sexual e física, comportamento sexual de risco, gravidez não planejada, transmissão de doenças sexuais, intoxicação severa, poliuso de drogas, acidentes de trânsito e outros comportamentos de risco à saúde.

No Brasil este tema tem sido pouco estudado, merecendo maior atenção por parte da comunidade científica e órgãos competentes. Ressalta-se que a Organização Mundial de Saúde (OMS) considera os locais de lazer noturno, nos quais há uma cultura de beber estabelecida, como ambientes-chave para intervenções que visem diminuir os agravos já mencionados. No entanto, para o planejamento de intervenções eficazes que visem diminuir o consumo abusivo de álcool, outras drogas e demais comportamentos de risco, é necessário compreender os fatores que condicionam seu aparecimento. Considerando-se que os comportamentos de risco não se apresentam da mesma forma e intensidade nestes ambientes, as intervenções devem prever estas diferenças, respeitando as particularidades de cada perfil de estabelecimento.

Desta forma, o objetivo do projeto foi o de avaliar a realidade das baladas de São Paulo, além de uma intervenção para a redução do consumo abusivo de álcool entre jovens aplicado via web.

A presente tese de doutorado vinculou-se a este projeto de pesquisa, e contribuiu na estruturação do conhecimento acerca da realidade da vida noturna

através dos seguintes objetivos: explorar perfis de consumo de álcool e outras drogas nas baladas associado aos comportamentos de risco durante ou logo após a balada; e, avaliar a eficácia de uma intervenção digital de normas sociais aplicada, entre frequentadores de baladas, via web em um ensaio clínico randomizado com acompanhamento em 3, 6 e 12 meses.

De acordo com as orientações do Programa de Pós-Graduação em Saúde Coletiva vinculado ao Departamento de Medicina Preventiva da Universidade Federal de São Paulo (UNIFESP), a presente tese foi estruturada em "formato alternativo", ou seja, apresentando os artigos publicados ou submetidos à publicação, decorrentes do estudo. Desta forma, os elementos textuais obrigatórios se apresentam de forma compacta, dividindo-se em: Introdução, Justificativa, Objetivos, Artigos, Considerações Finais, Referências Bibliográficas e Anexos.

O primeiro artigo "*Polydrug use among nightclub patrons in a megacity: a latent class analysis*"*,* publicado em 2015 na revista *International Journal of Drug Policy*, indexada no *Pubmed*, teve como objetivo avaliar de que forma o poliuso concorrente de drogas agrupa-se entre frequentadores de baladas na cidade de São Paulo através do uso de Análise de Classes Latente (*Latent Class Analysis* – LCA*)* e explorar como esses diferentes padrões de uso de drogas associam-se a fatores sociodemográficos, frequência às baladas e estilo musical da balada frequentada.

O segundo artigo, intitulado, "*Alcohol-induced risk behaviors among Brazilian nightclub patrons: a latent class analysis*", foi submetido à publicação em outubro de 2016 na revista *Addictive Behaviors – An International Journal*, indexada no *PubMed*, e, encontra-se em fase de análise. Os objetivos deste artigo foram, inicialmente, avaliar de que forma comportamentos de risco associados ao consumo de álcool agrupam-se entre frequentadores de baladas na cidade de São Paulo e explorar como

esses diferentes padrões de risco estão associados com fatores sociodemográficos, beber em padrão "*binge drinking"* e estilo musical da balada em que os frequentadores foram entrevistados.

O terceiro artigo, "*Web-based intervention to prevent harmful alcohol use among nightclub patrons: opposite effects according to baseline alcohol use disorder classification",* também foi submetido à publicação em outubro 2016 na revista *Drug Alcohol Dependence*, indexada no *PubMed*, encontra-se em fase de análise. Teve como objetivo testar uma intervenção via web para reduzir o consumo de álcool e a frequência de "*binge drinking"* entre frequentadores de baladas na cidade de São Paulo.

INTRODUÇÃO

1. INTRODUÇÃO

1.1 Baladas como ambiente de risco

São Paulo é a cidade mais populosa do Brasil e do hemisfério Sul, com mais de 12 milhões de habitantes (IBGE, 2016). A vida noturna de São Paulo, isto é, entretenimentos disponíveis e mais populares do anoitecer até as primeiras horas da manhã são uma das maiores atrações da cidade. De acordo com uma pesquisa de opinião realizada pelo CNN (Cable News Network), São Paulo oferece a 4ª melhor vida noturna do mundo o que faz com que a economia noturna seja lucrativa, levantando cerca de R$ 2,4 bilhões (US$ 770 milhões) anualmente (Muniz et al., 2014) para a economia brasileira. Na ‘‘cidade que nunca dorme’’, os frequentadores podem escolher o local a partir de uma gama diversificada de estilos musicais, como o funk, forró, eletrônica, pop-dance e flashbacks. Além da preferência musical, esses locais são caracterizados pela classe socioeconômica e orientação sexual de seus frequentadores, sendo que isso está muitas vezes relacionado com o bairro de localização e o custo da entrada (Renne, 2016).

Nos dias atuais, lazer e diversão são cada vez mais populares e amplamente aceitos como elementos essenciais de socialização (Lomba et al, 2009). A vida noturna desempenha um papel importante na vida moderna, sendo este um dos aspectos da recreação da juventude (Club Health, 2016).

Neste trabalho, as casas noturnas foram chamadas de “baladas”, ou seja, um local de recreação noturno (casas noturnas, boates, danceterias, etc) onde há música, pista de dança e venda de bebida alcoólica.

Trata-se de um importante espaço de socialização para os jovens, onde é possível romper com as responsabilidades do dia a dia, como aquelas relacionadas

ao trabalho ou aos estudos (Calafat et al., 2009; Cavan, 1966). É nestes locais que os jovens buscam a diversão, relacionamento amoroso e o consumo de álcool e outras drogas (Lomba et al, 2009).

Parker (2003) defende que vivenciar o contexto da balada ajuda na transição para a vida adulta, pois as pessoas adquirem maior capital social, culminando em maior conhecimento de si e do outro. Porém, este mesmo contexto pode criar uma gama de problemas sociais e de saúde, incluindo o álcool e uso de drogas, comportamentos antissocial e crimes (Hughes et al., 2008).

Entretanto, os padrões de consumo de álcool e outras drogas e os comportamentos de risco associados as baladas variam de acordo com aspectos culturais de cada país (Calafat et al., 2011) e, assim as intervenções devem prever a diversidade cultural. Na última década, estes ambientes passaram a ser estudados intensamente por pesquisadores europeus e os resultados destes estudos apontam fortemente para a necessidade de intervenção junto aos jovens que abusam do consumo de álcool e outras drogas nestes locais, visando a diminuição do risco individual e social que este comportamento acarreta (Calafat et al., 2009).

Devido à escassez de estudos nessa área, nota-se que não tem sido dada a atenção necessária a estes ambientes como locais de risco potencial. Porém, achados internacionais mostram que o excesso de ingestão de bebidas alcoólicas, nas casas noturnas e bares, está associado a um número maior de episódios de agressão física (Blay et al., 2010), comportamento sexual de risco (Bellis et al., 2008), violência sexual (Kelley-Baker et al., 2008) e acidentes de trânsito (Livingston et al., 2007).

Aparentemente, o contexto recreativo de casas noturnas, a baixa fiscalização e o abuso de álcool e outras drogas nestes locais contribuem para maior prevalência destes comportamentos de risco (Duff, 2008).

No Brasil, nenhum levantamento epidemiológico avaliou, até o momento, padrões de consumo de álcool e drogas nestes locais de lazer. O desenvolvimento de ambientes de diversão noturna seguros tem sido uma prioridade crescente em toda a Europa, pois gerir de forma eficaz locais de diversão noturna é fundamental não só para a saúde dos jovens como também para reduzir os encargos que tais comportamentos antissociais podem colocar sobre os serviços públicos e da sociedade (Calafat et al., 2001).

1.2 Abuso de álcool e outras drogas nas baladas

O álcool é apontado como a substância psicoativa mais consumida no mundo. Estima-se que existam cerca de dois bilhões de pessoas que consomem bebidas alcoólicas regularmente. Além disso, cerca de 5,9% dos casos de morte no mundo estão associados ao consumo de álcool, ou seja, a porcentagem de mortes associadas ao álcool é maior do que a dos óbitos causados por AIDS, violência e tuberculose. O efeito em cascata do uso nocivo do álcool é responsável por cerca de 3,3 milhões de mortes no mundo a cada ano (WHO, 2014).

As comparações temporais das estimativas da carga global de doenças atribuíveis a diferentes fatores de risco sugerem que, globalmente, as mortes e os anos de vida perdidos ajustados por incapacidade (DALYs - *Disability-Adjusted Life Years)* atribuídos ao álcool têm aumentado nas últimas décadas. Estas alterações levaram a um incremento na posição do álcool no ranking das principais causas de morte e de incapacidade no mundo, passando do oitavo lugar, em 1990, para o quinto

lugar, em 2010. Além disso, os dados disponíveis sugerem que o uso nocivo do álcool é o principal fator de risco para morte e incapacidade de pessoas entre 15 e 49 anos, em diversas partes do mundo (Lim et al., 2012).

Porém, destaca-se que a severidade das consequências do uso de álcool depende da frequência e das quantidades consumidas (Norström and Ramstedt, 2005). Um padrão de consumo de risco que tem despertado interesse internacional e que apenas recentemente começou a ser investigado no Brasil é denominado de "*binge drinking*" (BD) (Wechsler and Nelson, 2001) ou "beber pesado episódico" (Kuntsche et al., 2004). Este padrão costuma ser caracterizado pelo consumo de no mínimo quatro doses de álcool em uma única ocasião para mulheres e 5 doses para homens, o que leva a uma concentração de etanol no sangue de 0,08% ou superior (NIAAA, 2004).

Estes episódios de uso abusivo agudo de álcool, não apenas têm influência na mortalidade geral, mas contribuem para agravos à saúde, particularmente aqueles decorrentes de acidentes (Zhao et al., 2010) e agressões (Brewer and Swahn, 2005), colocando em risco o intoxicado e a coletividade. Além disso, na população geral, o BD está associado com maiores ocorrências de abuso sexual, tentativas de suicídio, sexo desprotegido, gravidez indesejada, infarto agudo do miocárdio, overdose alcoólica, quedas, gastrite e pancreatite (Naimi et al., 2003). Aproximadamente 16,0% daqueles que bebem com idades entre 15 anos ou mais se envolveram em episódios de BD em todo o mundo (WHO, 2014).

Apesar do uso nocivo do álcool estar entre os cinco principais fatores de risco para doença, deficiência e morte em todo mundo (WHO, 2014), não se pode deixar de notar o quadro preocupante no que tange o abuso de outras drogas psicotrópicas (Degenhardt et al., 2013). Estima-se que em 2012, entre 162 e 324 milhões de

pessoas, correspondendo a 3,5% e 7,0% da população mundial com idade entre 15 e 64 anos, tenham usado drogas ilícitas pelo menos uma vez nos 12 meses anteriores à pesquisa (World Drug Report, 2014). Uso de drogas ilícitas é um importante contribuinte para a carga global de doenças (Degenhardt et al., 2013).

No Brasil, o álcool é a droga mais consumida em todas as faixas etárias da população (Vieira et al, 2007) e de acordo com os dados do Levantamento Nacional de Álcool e Drogas (LENAD), 50% da população brasileira adulta (18 anos ou mais) consumiu bebida alcoólica, 16,9% utilizaram tabaco, 2,5% maconha e 1,7% cocaína no ano anterior à pesquisa (LENAD, 2012). O estudo aponta que, entre estes indivíduos, houve um aumento considerável na porcentagem de pessoas que, em dias que bebe, costumam praticar BD: em 2006 eram 29% e em 2012 passou para 39%.

Apesar de a maior parte dos estudos considerar a prevalência de consumo de cada droga separadamente, é comum identificar sujeitos que consumam mais de um tipo de droga (Oliveira et al., 2013). O poliuso de drogas, isto é, o uso de mais do que uma droga, ilícita ou lícita, é o termo geral que descreve uma variedade de comportamentos de uso (Smith et al., 2011).

No Reino Unido, uma pesquisa sobre a vida noturna demonstrou que a grande maioria dos usuários de drogas nas baladas podiam ser classificados como poli-usuários, sendo que mais de 70% deles também relatou consumo perigoso de álcool (Winstock et al., 2001). Uma das principais preocupações com a utilização de múltiplas drogas é que os efeitos dos fármacos individuais são geralmente potencializados (Quek et al., 2013) e aumentam a probabilidade de dano físico e fisiológico (Smith et al., 2011).

O abuso de álcool e outras drogas está diretamente relacionado com o contexto recreativo das baladas (Calafat et al., 2011), contribuindo para o aumento de

comportamentos de riscos de seus frequentadores (Duff, 2008). Conforme já foi dito, as baladas são locais frequentados principalmente por jovens e jovens adultos que buscam nestes locais diferentes formas de diversão, onde o uso de álcool e outras drogas funcionam como importantes mediadores (Demant, 2013).

No Brasil, bares e baladas são os locais de escolha para a prática de BD de acordo com dados populacionais (Laranjeira et al., 2007). No mesmo sentido, um estudo representativo dos estudantes do ensino médio de escolas particulares da cidade de São Paulo revelou uma alta prevalência BD no ano entre os alunos (35%); e mais uma vez as baladas apareceram como o local de preferência para tal prática (Sanchez et al., 2011).

Além disso, em vários países europeus, a preferência musical e a balada de escolha parecem prever o uso de drogas ilegais (Calafat et al., 2008). Um estudo dinamarquês encontrou que os frequentadores de eventos de hip-hop ou música eletrônica eram mais propensos a serem usuários de múltiplas drogas quando comparados a frequentadores de baladas de outros estilos musicais. Por outro lado, frequentadores de baladas de música pop eram menos propensos a terem usado qualquer droga ilícita, mas não álcool (Hesse e Tutenges, 2012).

1.3 Comportamentos de risco associados ao uso nocivo de álcool

Os funcionamentos cognitivo e físico são afetados pelo álcool, reduzindo o autocontrole e a capacidade de processar informação aumentando a impulsividade e tornando as pessoas mais propensas a se envolverem em comportamentos violentos (Graham, 2003, Peterson et al., 1990), sexo desprotegido, gravidez indesejada, violência física e sexual, acidentes de trânsito, lesões não intencionais, infarto agudo

do miocárdio e overdose de álcool (Bellis et al., 2008; Brewer and Swahn, 2005; Kelley-Baker et al., 2008; Livingston et al., 2007; Naimi et al., 2003; Sanchez et al., 2011).

Estudos indicam que as pessoas que ingerem bebida alcoólica ficam mais propensas a sofrer lesões não intencionais, sob influência do álcool, como por exemplo, aquelas decorrentes de acidentes com veículos automotores e violência física (Hingson et al., 2001; Hingson et al., 2002; Wells et al., 2005; Zakrajsek and Shope, 2006; Schnitzer et al., 2010). Neste sentido, o abuso de bebida alcoólica tem sido reconhecido como um importante problema de saúde pública entre os jovens, pois seu consumo é associado a diversos agravos à saúde. No entanto, problemas relacionados ao uso nocivo do álcool não afetam somente o consumidor, mas toda a comunidade (Babor et al., 2010).

Considerando que os clientes saem de bares e baladas com uma concentração alcoólica elevada (Hughes et al., 2011), há uma probabilidade maior de alguns comportamentos de riscos se perpetuarem fora do estabelecimento, como o beber e dirigir.

Um estudo conduzido por Andreuccetti et al. (2009) apontou que a maior parte dos acidentes automobilísticos fatais e homicídios, na cidade de São Paulo, ocorrem durante a madrugada dos finais de semana. Segundo dados do Instituto Médico Legal, 42% dos motoristas mortos em acidentes de trânsito, em 2005, apresentavam dosagem alcoólica superior a 0,6 g/l, indiretamente indicando que há uma associação entre o lazer da madrugada, o consumo de álcool e as mortes violentas na cidade.

Além disso, de acordo com uma pesquisa nacional domiciliar, 42% dos homens entrevistados afirmaram ter dirigido alcoolizados pelo menos uma vez no ano anterior

à pesquisa. Nesta amostra, o "*binge drinking"* estava associado ao comportamento de beber e dirigir (Pechansky et al., 2009).

Estudos internacionais apontam que pessoas que bebem em grandes quantidades, tendem a beber com mais frequência (Rossow, 1996) e se submetem a maiores riscos de violência (Bonomo et al., 2001; Wells e Graham, 2003; Swahn e Donovan, 2005). Além disso, a intoxicação causada pelo álcool é associada ao aumento da agressividade e gravidade das lesões sofridas (Leonard et al., 2003; Graham et al., 2006).

No estudo de Wells and Graham (2003) constatou-se que entre os jovens do sexo masculino frequentadores de baladas envolvidos em episódios de violência, o álcool foi o fator facilitador para as agressões, aumentando a autoconfiança para assumirem riscos e reduzindo a capacidade de julgar as consequências de seus comportamentos.

Pesquisas realizadas sobre violência em baladas, apresentam as agressões físicas como a principal manifestação de comportamentos violentos (Hughes et al., 2008, Hughes et al., 2011), entretanto, a violência é manifestada também de outras formas como agressão verbal e sexual e estão associadas ao uso de álcool (Graham et al., 2003).

Outro evento relacionado ao consumo de álcool são os apagões alcoólicos, isto é, períodos de amnésia que refletem a incapacidade do cérebro para registrar memórias do que aconteceu ao beber, ou porções de eventos que ocorreram durante um episódio de beber (Hingson et al., 2016). Embora, inicialmente os apagões induzidos pelo álcool foram vistos como possíveis apenas entre indivíduos dependentes do álcool, atualmente já se sabe que esses blecautes são bastante comuns entre adultos jovens saudáveis (Wetherill and Fromme, 2016).

Ressalta-se que, a severidade das consequências do consumo do álcool descritas acima depende da frequência e da quantidade consumida (Norström et al., 2005). Ou seja, o beber em padrão "*binge drinking*" contribui para o aumento do risco de todas essas consequências agudas descritas. E mais uma vez, deve-se lembrar que o abuso do álcool está diretamente relacionado ao contexto recreativo das baladas, contribuindo para o aumento de tais comportamentos de risco entre os frequentadores desses ambientes.

1.4 Rastreamento e intervenção nas baladas

Conforme já foi descrito, as casas noturnas são importantes locais de lazer e socialização para os jovens em todo o mundo, no entanto, são estabelecimentos com altas proporções de consumo abusivo de álcool (Calafat et al, 2011). Dessa forma, intervenções são necessárias para redução dos padrões do consumo de álcool entre os seus frequentadores e as consequências associadas (Calafat, 2003).

Uma das intervenções que recentemente vem sendo testada, especialmente na Europa e Estados Unidos é a "abordagem de normas sociais" (McAlaney et al., 2011), que reconhece que os indivíduos, particularmente os jovens, tendem a superestimar o consumo de álcool de seus colegas, e que esta percepção enviesada os leva a beber mais fortemente do que fariam. A abordagem das normas sociais visa reduzir esses equívocos e, assim, o consumo pessoal de álcool, através da utilização de mensagens personalizadas, em geral, via internet.

As mensagens personalizadas, isto é, feedback pessoal do seu consumo em relação às normas da população, por isso o nome feedback normativo, abordam informações pessoais como o perfil de beber e seus fatores de risco, comparações

com outros perfis e dicas de redução de danos (Walters et al., 2005; Palfai et al., 2014) confrontando o consumo individual de acordo com a população ou recebendo formas de como mudar seu comportamento (Riper et al., 2009).

Os feedbacks normativos propostos por estas intervenções, ofertados através da internet (intervenções digitais), fazem com que o jovem reflita sobre seu padrão de beber, que muitas vezes ocorre de maneira impensada e reflete uma falha na percepção do que é “normal”. Também é importante que o jovem tenha percepção sobre seus gastos com álcool e seus riscos sociais e pessoais decorrentes do consumo (Kypri and Langley, 2003).

Recentemente, tais intervenções digitais, através do uso da abordagem das normas sociais, vêm sendo testadas em países desenvolvidos especialmente entre jovens e/ou estudantes (Tait et al., 2010; Rooke et al., 2010). Esse tipo de intervenção tem a vantagem de poder ser utilizada em grande escala devido ao método de fácil acessibilidade e baixo custo (White et al., 2010), além de respeitar a privacidade dos participantes (Simon-Arndt et al., 2006).

Alguns programas de prevenção seletivos, baseados em normas sociais, destinados apenas à população já envolvida no comportamento, têm sido eficazes na diminuição do consumo de álcool entre jovens universitários (Moreira et al., 2009). Uma intervenção específica é a “***e****lectronic* ***S****creening and* ***B****rief* ***I****ntervention”* (e-SBI) (Kypri et al., 2009), isto é, uma intervenção breve que tem seu rastreamento e a própria intervenção realizadas via web. Ela foi desenvolvida na Austrália e Nova Zelândia e até o momento foi testada apenas entre universitários cujo hábito de beber era prejudicial, sendo este estabelecido através do rastreamento de 8 pontos ou mais obtido no “*Alcohol Use Disorders Identification Test*” (AUDIT) (Babor et al, 2001),

O AUDIT foi desenvolvido pela Organização Mundial da Saúde (OMS) para identificar frequência, quantidade e consequências do abuso de álcool. Como instrumento de avaliação, ele tem demonstrado um número crescente de evidências como uma metodologia rápida e de sucesso na identificação desses padrões (Reinert and Allen, 2007) e tem sido amplamente utilizado como teste de rastreamento para determinar riscos no padrão de consumo de álcool de pacientes no sistema de saúde e de estudantes em universidades (Berner et al, 2007).

Destaca-se ainda que, as intervenções via web atingem uma população maior do que aquelas que dependem da busca do sujeito pelo sistema de saúde e oferecem identificação do problema em estágios prévios (Bewick et al., 2010). Além disso, este tipo de intervenção digital tem sido mais bem aceita por jovens e parece ser um veículo promissor de intervenção breve.

Apesar da disseminação do acesso à internet e de programas de intervenção baseados na internet (Bewick et al., 2010; Kypri et al., 2009; Kypri et al., 2004; Voogt et al., 2011), este campo de estudo ainda é pouco disseminado no Brasil. Além disso, em se tratando de estudos randomizados que testem a efetividade do programa entre frequentadores de ambientes de alto-risco, como as baladas, esta carência é globalizada (Bewick et al., 2008), visto que quase todos os estudos realizados nesta temática envolvem universitários recrutados em suas universidades.

JUSTIFICATIVA

2. JUSTIFICATIVA

Desenvolver um ambiente de lazer noturno seguro se tornou sinônimo, especialmente, da redução do consumo excessivo de álcool o que indiretamente reduz a violência, acidentes e outros agravos a saúde, gerando não só o bem-estar dos indivíduos que saíram em busca do lazer, mas também, para a coletividade que se protege de eventos traumáticos em sua vizinhança e famílias. Isso já vem sendo estudado e colocado em prática em diversos países da Europa e Estados Unidos.

O comportamento de beber em padrão "*binge drinking*", que é aquele que, em média, leva a uma concentração alcoólica de 0,08% ou mais, está cada vez mais disseminado entre os jovens e, vem sendo praticado especialmente nas madrugadas dos finais de semana em baladas.

O consumo de forma prejudicial do álcool além do consumo de outras drogas nesses ambientes eleva o risco de acidentes, ferimentos por conta de brigas e/ou quedas e violência (física e sexual) tanto nestes locais como também nos arredores dos mesmos, além da possibilidade de praticar sexo inseguro posterior.

Até a proposta do projeto "Balada com Ciência" nada havia sido estudado ou divulgado no meio científico sobre a realidade das baladas em São Paulo, sendo que o diagnóstico do que ocorre nesses ambientes de lazer noturno é o primeiro passo para o direcionamento de políticas públicas destinadas à população exposta.

Desta forma, o projeto "Balada com Ciência" teve o propósito de estruturar o conhecimento sobre a realidade das baladas da maior cidade do Brasil acerca do consumo de álcool e outras drogas nesses ambientes de lazer noturno.

Este trabalho por se tratar de uma tese vinculada ao projeto "Balada com Ciência", utilizou os dados coletados do projeto, ou seja, dados obtidos através de um

inquérito de portal em 31 baladas da cidade de São Paulo e, teve seus objetivos estruturados em formato de três artigos distintos, apresentados a seguir.

OBJETIVOS

3. OBJETIVOS

Os objetivos deste trabalho foram:

1. Avaliar de que forma o poliuso de drogas agrupa-se entre os frequentadores das baladas através da análise de classe latente e, explorar como esses padrões de uso de drogas associam-se com fatores sociodemográficos, frequência às baladas e estilo musical do local onde esses frequentadores foram entrevistados.
2. Avaliar de que forma os comportamentos de risco associados ao consumo de álcool agrupam-se entre frequentadores de baladas em São Paulo e explorar como esses diferentes padrões de comportamentos de risco estão associados com fatores sociodemográficos, "*binge drinking*" e estilo musical da balada onde o frequentador foi entrevistado.
3. Testar uma intervenção via web para redução do consumo do álcool e o consumo excessivo de bebidas alcoólicas caracterizado pelo "*binge drinking*" entre frequentadores de baladas na cidade de São Paulo.

ARTIGOS

4. ARTIGO 1

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Research paper

Polydrug use among nightclub patrons in a megacity: A latent class analysis

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ABSTRACT

Background: Nightclubs are places with a high prevalence of binge drinking and illicit drug use. The aim of this study was to evaluate the characteristics of polydrug use, including licit and illicit drugs, among 2420 nightclub patrons in a probabilistic sample in the city of Sa˜o Paulo, Brazil,

Methods: The study was conducted in 2013. A latent class analysis (LCA) of polydrug use, accounting for binge drinking (BD) and other drug use (cannabis, cocaine, ecstasy, tobacco, ketamine, inhalants and hallucinogens) in the past 12 months was performed using Mplus. Multinomial logistic regression was used to evaluate latent class associations with sociodemographic characteristics and variables that characterise type of nightclub and frequency of attendance.

Findings: A three-class LCA model best described polydrug use patterns. We found a ''no polydrug use'' class (55%), a ''moderate polydrug use'' class (35%) and a ''high level polydrug use'' class (10%). Compared to ''no polydrug use'', patrons in the two ''polydrug use classes'' were more likely to be men, young adults (<34 years), have attended nightclubs three times or more per month and have attended hip-hop and rock music nightclubs. Patrons in the ''high level polydrug use'' class were more likely to attend electronic (aOR = 9.9, 95% CI: 5.4–8.1, $p < 0.001$) and hip-hop music nightclubs (aOR = 10.1, 95% CI: 6.2–16.5, $p < 0.001$).

Conclusion: LCA is a useful method to identify groups of polydrug users among nightclub patrons. The three groups identified represented the diversity of patrons of Sa˜o Paulo nightclubs. Frequency of attendance and the nightclub's musical style were highly correlated with polydrug use.

Introduction

Sa˜o Paulo is the most populous city in Brazil and in the Southern hemisphere, with more than 11 million inhabitants (IBGE, 2014). The nightlife of Sa˜o Paulo is arguably one of its greatest attractions, as observed by tourists and experts worldwide. According to a CNN (Cable News Network) survey, Sa˜o Paulo offers the 4th best nightlife in the world, receiving a grade of nine out of 10 for working hours, people and experience (Manson, 2014). The night- time economy is lucrative, raising US$ 770 million (R$ 2.4 billions) annually (Muniz, Silva, & Maffezzolli, 2014) for the Brazilian economy.

In ''the city that never sleeps'', patrons can attend all types of nightclubs, from the regular venue with pop-dance music, to electronic music nightclubs that open at dawn and close the next afternoon. Patrons can choose nightclubs from a diverse range of musical styles, such as funk (high sexual connotation dance and lyrics), "forro´ " (typical Brazilian ballroom dance), electronic and flashback. Besides music preferences, venues in Sa˜o Paulo are characterised by the socioeconomic class and sexual orientation of their patrons. This is often related to the neighbourhood where the club is located and the cost of entry (Silva, 2014).

Worldwide, nightclubs are generally places visited by youths and young adults who are seeking entertainment and where the use of alcohol and other drugs act as important mediators (Demant, 2013). According to Calafat et al. (2011), the recrea- tional context of the nightclub is associated with the misuse of alcohol and other drugs, and contributes to increased risk behaviour inside these venues (Duff, 2008). Moreover, patrons of music festivals and dance events have been found to have more experience of illegal drugs use than other groups in the population (Chinet, Ste´phan, Zobel, & Halfon, 2007; Winstock, Griffits, & Stewart, 2001).

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Polydrug use among nightclub patrons in a megacity: a latent class analysis

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Polydrug use among nightclub patrons in a megacity: a latent class analysis

Abstract

BACKGROUND:
Nightclubs have been described as places with high prevalence of binge drinking and illicit drug use in developed countries. The aim of this study was to evaluate characteristics of polydrug use, including licit and illicit drugs, among 2420 nightclub patrons in a probabilistic sample in the city of São Paulo, Brazil, in 2013.

METHODS:
A latent class analysis (LCA) of polydrug use considering binge drinking (BD) and other drug use (marijuana, cocaine, ecstasy, tobacco, ketamine, inhalants and hallucinogens) in the past 12 month was performed using Mplus, taking into account complex survey design features. Multinomial logistic regression was used to evaluate latent class associations with sociodemographic characteristics and variables that characterise nightclub style and frequency of attendance.

RESULTS:
A three-class LCA model best described polydrug use patterns. We found a "no polydrug use" class (55%), a "moderate polydrug use" class (35%) and a "high level polydrug use" class (10%). Compared to "no polydrug use" class, patrons in the two "polydrug use classes" were more likely to be men, young adults (<34 years), have attended nightclubs three times or more per month and have attended hip-hop and rock music nightclubs. Patrons in the "high level polydrug use" class were more likely to attend electronic (aOR= 9.9, 95%CI:5.4-8.1,p<0.001) and hip-hop music nightclubs (aOR=10.1, 95%CI:6.2-16.5, p<0.001).

CONCLUSION:
LCA is a useful method to identify groups of polydrug users among nightclub patrons. The three classes identified represented the dimensionality of São Paulo nightclub patrons. Frequency of attendance and the nightclub's musical style were highly correlated with polydrug use classes.

Keywords: Binge drinking; Polydrug use; Latent class analysis; Alcohol; Epidemiology.

1. Introduction

São Paulo is the most populous city in Brazil with more than 11 million inhabitants (IBGE, 2014) and it is also the most populous city in the Southern hemisphere. The restless night of São Paulo is arguably one of the greatest attractions of the city, as it has been observed by tourists and experts worldwide. According to a CNN (Cable News Network) survey, São Paulo offers the 4th better nightlife in the world, receiving a grade 9 out of 10 for working hours, people and experience (Manson, 2014) and producing a night-time economy that moves annually US$ 770 million (R$ 2.4 billions) (Muniz et al., 2014).

In “the city that never sleeps”, patrons can attend all types of nightclubs, from the regular venue with pop-dance music, to several electronic music nightclubs that open at dawn and close only on the next day afternoon. In this scenario, clients can choose nightclubs with the most diverse musical styles, such as funk (high sexual connotation dance and lyrics), “forró” (typical Brazilian ballroom dance), electronic, flashback, eclectic, among several others, designed for diverse audiences. Besides music styles preferences, these venues in São Paulo usually cluster patrons by social economic classes and sexual orientation, considering the neighbourhood where they are located and the entrance fee (Silva, 2014).

Worldwide, nightclubs are places visited mainly by youths and young adults who seek different forms of entertainment in these locations, where the use of alcohol and other drugs acts as important mediators (Demant, 2013). According to Calafat et al. (2011), the recreational context of nightclubs is associated to the abuse of alcohol and other drugs, contributing to increases in risk behaviours inside these venues (Duff, 2008). Moreover, apparently, patrons of music festivals and all kind of dance events have been described as more experienced with illegal drugs than other groups of the population (Winstock et al, 2001; Chinet et al., 2007).

In the United Kingdom, a nightlife survey demonstrated that the vast majority of club drug users were polysubstance users, with over 70% also reporting hazardous alcohol consumption (Winstock et al., 2001). One of the major concerns about polydrug use is that the effects of the individual drugs are usually boosted, and harmful physiological effects can accumulate in the body (Quek et al., 2013) and increase the likelihood of physical and physiological damage (Smith et al., 2011).

Besides, in several European countries, music preference and venue choice seem to predict illegal drug use (Calafat et al., 2008). A Danish study that focused on drug initiation inside music festivals found a higher prevalence of first cannabis and tobacco use among attendees of rock festivals (Hesse et al, 2010). The same group of researchers found that patrons who prefered hip-hop or electronic music festivals were

more likely to be polydrug users, while patrons who prefered pop music were less likely to have used all illicit drugs, but not alcohol (Hesse & Tutenges, 2012).

In Brazil, although a population study have shown that nightclubs are the location of choice for young people to practice binge drinking (Sanchez et al., 2011), no epidemiological survey to date has identified the patterns of consumption of alcohol and drugs among patrons of these venues. All major studies about the nightlife environment were conducted in countries in Europe (Bellis et al., 2008), North America (Carlson et al., 2005) and Oceania (McKetin et al., 2014), leaving a large gap in the knowledge of this behaviour in less wealthy and more unequal countries.

Whereas diagnosis of the risks is the first step in the development of effective harm reduction policies for a given population, it is necessary to understand the São Paulo nightlife scene. In this sense, science can contribute to inform policy by identifying which groups are more exposed to risks and that should be targeted by nightlife harm reduction initiatives, such as: providing free water; organizing a “chill out” area with appropriate ventilation, temperature, and places to sit; staff training for a responsible drinking service and for first-aid support during alcohol and drugs intoxication (Van Havere et al, 2011).

Thus, we designed a study called “Balada com Ciência” (www.baladacomciencia.com.br) to evaluate the prevalence of risk behaviours practiced by nightclub patrons in the city of São Paulo, with emphasis on alcohol and illicit drug use. For this article, we set out to evaluate how concurrent polydrug use is grouped among nightclub patrons by the use of latent class analysis (LCA) and to explore how these different patterns of drug use are associated with sociodemographic factors, frequency of attendance and music style of the venue frequented by the patrons.

2. Methodology

2.1 Ethics committee approval

The procedures for selecting, obtaining informed consent and protecting the human beings involved in the research was approved by the Research Ethics Committee of the Federal University of São Paulo (Universidade Federal de São Paulo - UNIFESP) (protocol number 795276).

2.2 Sampling

For this study, we defined “nightclubs” as establishments that have controlled entry and exit of patrons, sell alcoholic beverages and have a dance floor. A portal survey

(Voas et al., 2006), was conducted at nightclubs in the city of São Paulo during the first half of 2013, and data were collected from their patrons. Cluster sampling was performed in two stages; the selection of nightclubs (first stage) consisted of a systematic sample of 40 nightclubs, with a probability of inclusion proportional to their maximum capacity. The patron selection (second stage) was a systematic sample of every third person in the entrance lines of the selected nightclubs (Voas et al., 2006).

The nightclub frame list was created by an active search of magazines, guides specialized in leisure activities and a search of the first ten pages returned from a Google search using the following key words: “São Paulo, Nightclubs and Discos” (in Portuguese). The final frame list consisted of 150 nightclubs meeting the inclusion criteria, from which 40 nightclubs and potential replacements were drawn. The statistical model used in this study (draw and inferential process for large samples in clusters) requires at least 30 primary sample units to allow a proper performance of the statistical analyses (Levy and Lemeshow, 1980). To guarantee that we would have at least 30 nightclubs participating in the survey we contacted the original 40 selected nightclubs and 7 replacements, resulting in an acceptance rate of 66% (31/47). The replacements had the same capacity, were located in the same neighbourhood, and were subject to the same probability of selection of the original nightclub sampled. An adjustment factor for non-response was used by weighting the 31 nightclubs in order to make them equivalent to the 40 selected nightclubs. The adjustments were estimated by a logistic regression model with agreement to participate in the study as the dependent variable and establishment size as the explanatory variable. The nightclub (clusters) weights were equal to the inverse selection probability multiplied by the non-response adjustment factor.

A target sample size of 1,600 patrons was calculated considering an absolute precision of 5% and a 95% confidence interval (CI), with two-stage cluster sampling and a design effect of two (Lwanga and Lemeshow, 1991). Considering a possible refusal rate of 30% and a maximum loss to follow-up from entrance to exit of 40% (Clapp et al., 2007), 2912 patrons were initially approached.

More details on sample weights and study design are presented in Carlini et al. (2014).

2.3 Details about data collection

Our team visited 31 nightclubs, each one on a different night, from the beginning of the “party” (approximately 10:30pm) until the club was closed

(approximately 7:00am). To define the day of data collection in each nightclub, we asked the manager to indicate the most popular day at each venue. In most of the nightclubs, we collected data on Friday and Saturday nights (75%) as per managers' suggestions. The other 25% of data collection days were distributed among the other five possible nights of the week.

Data collection took place from January to July 2013 (from summer to winter, with an average temperature of 20°C).

2.4 Details about nightclubs

Most of the nightclubs in our sample were open from 11:00pm to 7:00am, the usual opening hours of nightclubs in São Paulo. However, three nightclubs in our sample closed between 9:00 am and noon.

In sampling the nightclubs, we stratified for capacity, to guarantee the inclusion of small, medium and large nightclubs. The nightclubs in the sample were distributed across São Paulo's five regions (North, East, South, Centre and West). The stratification per region have guaranteed socioeconomic diversity.

The nightclubs that have participated in our study came from the most diverse background and were as representative as possible of the diversity of the nightclubs in the city, ranging from venues aimed at couples' ballroom dancing to indoor raves or funk festivals in slum areas. Since our intention was to collected data from different kinds of nightclubs (different regions, social classes, capacity, sexual orientations, and music style), we have selected similar nightclubs for the replacements of the refusals.

It is important to note that São Paulo nightclubs have different musical styles ranging from those that play an eclectical variety of musical styles on the same night to those where a particular style predominates (e.g. electronic, funk, rock, pop-dance, forró, zouk and hip-hop). The impressive variety of nightclubs in São Paulo represents a mixture of cultures, races and sexual preferences. The patronage of each nightclub varies according to the entrance fee (ticket price), that goes from R$ 10,00 (~US$ 3,00) to more than R$ 300,00 (~US$ 100,00) and type of music played.

2.5 Instruments and data collection

Patrons were systematically selected from the entrance lines of the nightclubs. Those who agreed to participate responded to an entrance and exit interview based on a questionnaire and performed a breathalyser test after each interview (Draguer Alcotest 7410 Plus RS). The patrons received a bracelet with a unique numeric code to identify

them at the nightclub exit, which allowed the data of the same subject at entry and exit to be matched. Each night, seven field interviewers used Samsung Galaxy tablets to insert the interview data, which were sent to a central database in real time.

Initial interviews at the nightclub entrances investigated sociodemographic variables, patterns of alcohol and drug use and risk behaviours in nightclubs in the year preceding the survey.

2.6 Variables

The following aspects were evaluated as explanatory variables: sociodemographic characteristics (gender, age, ethnicity, socioeconomic status [SES], education, occupation and religion); information on the patrons' frequency of attending nightclubs in the last 30 days; and the type of nightclub, classified by the musical style. Each respondent was asked about his or her past year's history of binge drinking (5 doses of alcohol for men and 4 doses for women, in the period of 2 hours - a serving dose was defined as a 5-oz glass of wine, a 12-oz can of beer or a 1.5-oz shot of liquor and the equivalence examples) (NIAAA, 2004) and drug use (tobacco, marijuana, cocaine, ecstasy, inhalants, ketamine and hallucinogens). A binary response to each of these drugs ('yes' or 'no') served as the basis for generating the latent classes. Concurrent polydrug use was evaluated over one year, as this interval has the advantages of capturing a largest period of probable experimentation compared to use on the day of the survey and of maintaining the statistical power to determine the classes (Quek et al., 2013). Polydrug use, i.e., using more than one drug, licit or illicit, is a general term describing a variety of patterns of multiple drug use (Smith et al., 2011). According to Martin (2008), concurrent polydrug use is defined as a same person consumption of more than one drug in a period of up to 12 months.

SES was evaluated using a standardised index known as the "Brazilian Economic Classification" (ABEP, 2012), which is based on the education level of the household head, possession of various types of consumer goods (e.g., television sets) and the number of domestic employees. This scale was used to classify participants into subgroups from "A" to "E" (where A corresponds to the highest economic stratum).

To facilitate interpretation, some low-frequency categories were grouped together (in this case SES classes "C", "D" and "E" were grouped together); age was categorised into three age groups ("18-25", "26-33" and "34 years or older"). For education, "without qualifications", "incomplete primary education" and "complete primary education" were grouped into the same category (up to elementary school), individuals with complete secondary school education were classified as having "secondary school education", and those with an undergraduate degree or completed or on-going postgraduate

education were classified as "University/Postgraduate". For marital status, married and common-law marriage were grouped into a single category, and separated and widower into another.

Frequency of nightclubs attendance in the past 30 days was categorised by the median of "up to 3 times a month" or "more than 3 times a month." Musical styles were categorised into eclectic (plays several musical styles on the same night), country, funk, electronic, pop-dance, rock, hip-hop and forró, according to the type of music played in the nightclubs, and were recorded by field staff during data collection.

2.7 Statistical analysis

Complex latent class models (Hagenaars and McCutcheon, 2002), from one to six classes, were estimated and the fit of one model was compared to the other five, using the MPlus program version 7 (Muthén and Muthén, 2012). Models with an increasing number of classes are specified using an iterative process. Latent class extraction ceases when there is a small gain with the inclusion of an additional class. The adjusted model is evaluated on the basis of goodness of fit statistics and considerations of parsimony. Goodness of fit statistics include: log likelihood (LL), Akaike information criterion (AIC) (Akaike, 1974); Bayesian information criterion (BIC) (Schwartz, 1978); Sample size-adjusted Bayesian information criterion (SSABIC) (Sclove, 1987); Vuong Lo Mendell Rubin test (VLMR) (Lo et al., 2001); and an entropy measure (Ramaswamy et al., 1993). Entropy is based on a posteriori probability and indicates the accuracy of the classification; values close to one indicate clear classifications and greater precision (Carragher and McWilliams, 2011). In addition to the indices described above, the final evaluation of the model of best fit considered the solution that reflected consistency and conceptually distinct groups.

Once the number of classes had been determined and the patrons grouped into the classes created, a multinomial logistic regression model (Hosmer et al., 2013) was performed in Stata/SE 13. The logistic regression model was constructed in two blocks – Block 1 with sociodemographic variables and Block 2 with variables relating to frequency and nightclub style.

The results are presented as weighted percentages (wgt%), crude odds ratios (cOR), adjusted odds ratios (aOR), 95%CI and p-values.

3. Results

A total of 3,063 approaches were conducted at the 31 nightclubs that participated in the study; 2422 interviews (79.1% acceptance rate at the time of entrance) were performed. There was no significant gender difference between those who consented or did not consent to participate in the interview at the entrance (p = 0.945).

Two interviews had missing data in all of the variables used for the construction of latent classes, so the sample size used was 2420 interviews.

Table 1: Sociodemographic characteristics of nightclub patrons (N = 2420) in the city of São Paulo in 2013.

Variables	N	wgt%	95%CI
Sociodemographics			
Gender			
Male	1476	60.8	[48.3; 72.0]
Female	944	39.2	[28.0; 51.7]
Age group (years)			
18 – 25	1356	62.9	[51.9; 72.6]
26 – 33	684	24.9	[18.8; 32.1]
≥ 34	380	12.3	[7.5; 19.5]
Ethnicity			
White	1701	69.5	[63.1; 75.4]
Mixed Race	429	19.8	[14.4; 26.6]
Black	184	7.6	[5.6; 10.0]
Others	79	3.1	[2.1; 4.5]
Socioeconomic status			
A	638	25.8	[19.0; 63.8]
B	1361	53.7	[50.5; 56.9]
C/D/E	421	20.5	[14.9; 27.5]
Education			
Up to elementary school	138	7.5	[4.5%; 12.3]
Secondary school	1335	59.6	[53.0; 65.8]
University / Postgraduate	920	32.9	[24.8; 42.3]
Marital Status			
Married / cohabitating	183	6.8	[3.9; 11.7]
Single	2123	90.3	[84.2; 94.2]
Separated / Widowed	99	2.9	[1.8; 4.6]
Occupation			
Just working	1211	47.6	[40.6; 54.7]
Working and studying	724	32.3	[28.2; 36.6]
Just studying	314	13.4	[8.8; 19.9]
Neither working nor studying	149	6.7	[5.0; 8.9]
Religion			
None	817	30.5	[25.5; 35.9]
Non-practising	878	39.3	[36.4; 42.4]
Practising	707	30.2	[26.1; 34.6]

Table 1 (cont.)**:** Sociodemographic characteristics of nightclub patrons (N = 2420) in the city of São Paulo in 2013.

Variables	N	wgt%	95%CI
Nightclubs			
Monthly frequency			
Up to 3 times	1288	54.2	[47.3; 61.0]
More than 3 times	1127	45.8	[39.0; 52.7]
Music			
Eclectic	536	25.1	[10.8; 48.1]
Country	218	17.0	[3.5; 53.5]
Funk	151	9.5	[2.2; 33.2]
Electronic	663	28.2	[11.3; 54.7]
Pop-dance	261	7.4	[1.8; 26.1]
Rock	240	2.8	[0.7; 10.1]
Hip-hop	164	5.0	[0.8; 24.8]
Forró/Zouk	187	5.1	[1.1; 20.8]

Table 1 presents the sociodemographic characteristics of the nightclub patrons, which shows that most of the patrons were male (60.8%), 53.7% came from the middle socioeconomic class, 69.5% were white, 90.3% were single and 88% were below 33 years-old.

The latent classes were created from the variables of consumption of licit and illicit drugs in the last year. A total of six latent class models (classes 1 to 6) were examined (**Table 2**). The solution with one class exhibited the worst fit with the data when compared to other fits. The 3-class model presented a lower BIC value; however, the lowest SSABIC value was detected in the 4-class model. The LL and AIC values decreased as the number of classes increased. The VLMR test p-value of the two-class model was not significant. The highest entropy value was obtained in the two-class model. Considering the BIC value as the most reliable measure (Nylund et al., 2007), the 3-class model was selected as the most parsimonious, as it had acceptable values in the other goodness of fit statistics and interpretability from the point of view of the event.

Table 2: Goodness of fit statistics according to the number of latent classes for polydrug use in the preceding year among nightclub patrons (N=2420) in the city of São Paulo, 2013.

Polydrug use						
	Goodness of fit statistics					
Model	**LL**	**AIC**	**BIC**	**SSABIC**	**p-Vuong**	**Entropy**
1 class	-8,187.570	16,391.14	16,437.47	16,412.05	N.A.	N.A.
2 classes	-7,104.308	14,242.62	14,341.07	14,287.06	0.202	0.827
3 classes	-6,919.892	13,891.78	14,042.36	13,959.76	0.136	0.695
4 classes	-6,885.635	13,841.27	14,043.97	13,932.77	0.429	0.677
5 classes	-6,867.901	13,823.80	14,078.63	13,938.83	0.538	0.674
6 classes	-6,852.533	13,811.06	14,118.02	13,949.62	0.575	0.709

Note: Goodness of fit statistics represent: LL, log likelihood; AIC, Akaike information criterion; BIC, Bayesian information criterion; SSABIC, Sample size adjusted Bayesian information criterion; p-Vuong, p-value associated with Vuong Lo Mendell Rubin test (VLMR).

Table 3 shows the weighted probabilities of BD and polydrug use in the previous year for each latent class of the model of best fit (3 latent classes). The classes were called "No polydrug use" corresponding to 55% of the patrons (95%CI=45.5%;64.1%), "Moderate polydrug use" (35%, 95%CI=29.2%;40.3%) and "high level polydrug use" (10%, 95%CI=5.3%;19.6%). Patrons in the "no polydrug use" class had an average likelihood of binge drinking (49.6%), a low probability of smoking (5.4%) and a negligible probability of using other drugs (<5%). Patrons in the "moderate polydrug use" class had high probabilities of practicing BD (92.7%) and smoking (73.5%), a moderate probability of marijuana use (55.0%) and a low probability of the use of other drugs (<15%). Patrons in the "high level polydrug use" class had high risk levels for BD practice, marijuana use and ecstasy use (>80%) and a moderate probability of the use of other drugs (between 40 and 70%). **Figure 1** shows the probability of each of the variables used to construct the latent classes in each class of the adopted model.

Figure 1. Weighted probability of polydrug use in the past 12 months given the latent class among nightclub patrons (N = 2420) in the city of São Paulo, 2013.

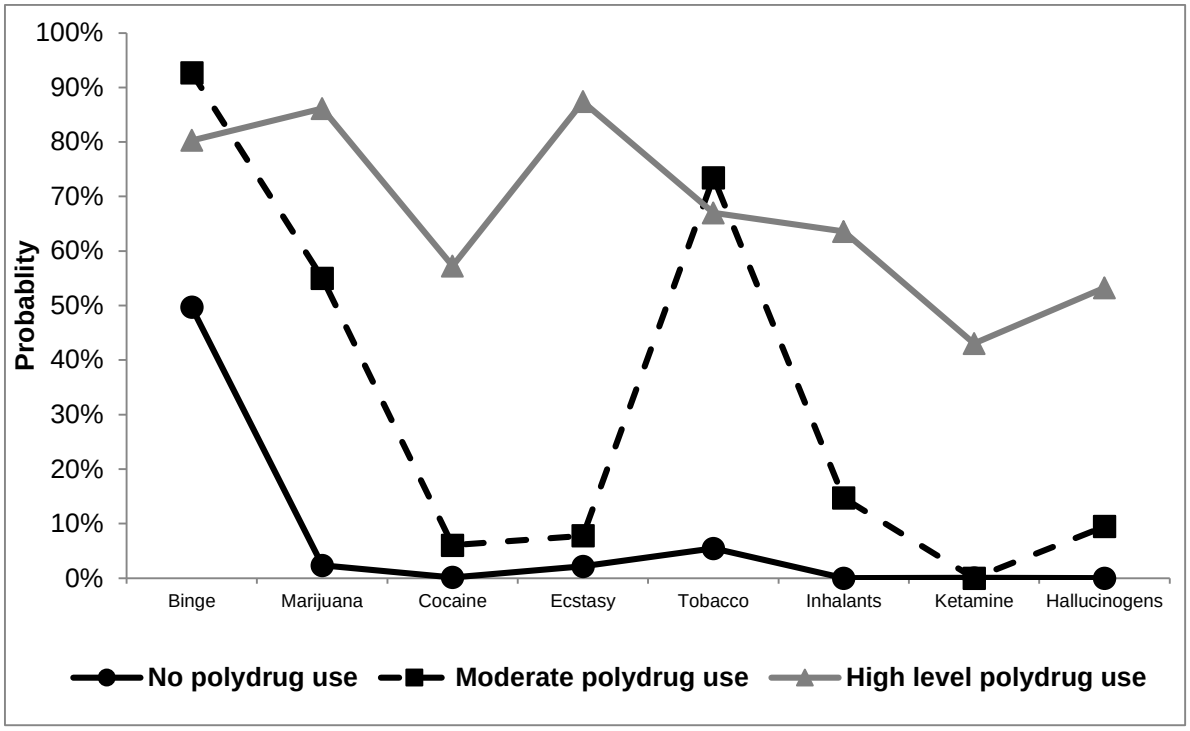

Table 3: Conditional prevalence rates of *binge drinking* (BD) and polydrug use in the previous year for each latent class among nightclub patrons in the city of São Paulo in the year 2013 (N=2420).

	Latent Classes											
	No polydrug use (N = 1253)			Moderate polydrug use (N = 925)			High level polydrug use (N = 242)			Total (N = 2420)		
Criteria*	**N**	**wgt%**	**95%CI**	**N**	**wgt%**	**95%CI**	**N**	**wgt%**	**95%CI**	**N**	**wgt%**	**95%CI**
BD	606	49.6	[45.0; 54.3]	847	92.7	[90.5; 94.5]	189	80.3	[76.2; 83.8]	1642	67.8	[63.4; 71.9]
Marijuana	42	2.4	[1.1; 5.0]	523	55.0	[45.6; 64.1]	205	86.1	[81.5; 89.7]	770	29.3	[20.6; 39.9]
Cocaine	2	0.1	[0.0; 0.7]	72	6.0	[4.0; 9.2]	121	57.2	[40.3; 72.6]	195	8.2	[4.2; 15.3]
Ecstasy	21	2.2	[0.8; 5.6]	57	7.8	[4.7; 12.5]	213	87.4	[82.4; 91.1]	291	13.0	[7.0; 23.0]
Tobacco	74	5.4	[4.2; 7.0]	683	73.5	[68.4; 78.0]	160	67.0	[60.3; 73.1]	917	35.5	[29.9; 41.5]
Inhalant	0	0.0	-	126	14.7	[9.4; 22.2]	152	63.6	[56.4; 70.2]	278	11.7	[7.1; 18.8]
Ketamine	1	0.1	[0.0; 0.3]	0	0.0	-	79	43.0	[17.7; 72.6]	80	4.5	[1.3; 15.0]
Hallucinogens	0	0.0	-	105	9.5	[6.0; 14.7]	139	53.3	[43.0; 63.2]	244	8.9	[5.2; 14.8]

* consumption in previous 12 months, BD – binge drinking

Table 4 displays the results of the multinomial logistic regression model (univariate and multivariate) with "no polydrug use" class as the reference category. Compared to those in the “non-polydrug use” class, individuals in the “moderate polydrug use’ were more likely to have 18 to 25 and 26 to 33 year age (aOR=2.5, 95%CI=1.7-3.6 and aOR=2.4, 95%CI=1.5-4.0, respectively), have attended nightclubs more than 3 times a month (aOR=1.8, 95%CI=1.5-2.2), along with those who attended rock nightclubs (aOR=1.9, 95%CI=1.4-2.8) and hip-hop nightclubs (aOR=1.9, 95%CI=1.4-2.7). Those frequenting country music and forró/zouk nightclubs were, respectively, 57% and 64% less likely to belong to the "moderate polydrug use" class than to the "no polydrug use" class ($p<0.001$). Those on the “high level polydrug use” class were more likely to be male (aOR=1.4, 95%CI=1.0-2.1), have attended nightclubs more than 3 times a month (aOR=3.5, 95%CI=2.0-6.2), along with those who attended electronic music nightclubs (aOR=9.9, 95%CI=5.4-18.1), rock nightclubs (aOR=2.3, 95%CI=1.3-4.0) and hip-hop nightclubs (aOR=10.1, 95%CI=6.2-16.5). However, those frequenting country music and forró/zouk nightclubs were, respectively, 94% and 75% less likely to belong to the "high level polydrug use" class than the "non-polydrug use" class ($p<0.001$ and $p=0.013$, respectively).

Table 4: Characteristics of past-year polydrug use classes identified through LCA in a sample of the nightclub population (N = 2420); São Paulo, 2013.

	Polydrug use			Univariate analysis						Multivariate analysis					
	No	Moderate	High level	Moderate polydrug use vs. No polydrug use			High level polydrug use vs. No polydrug use			Moderate polydrug use vs. No polydrug use			High level polydrug use vs. No polydrug use		
	wgt%	wgt%	wgt%	cOR	95%CI	p	cOR	95%CI	p	aOR	95%CI	p	aOR	95%CI	p
Block 1															
Gender						0.013			0.001			0.114			0.046
Female	45.0	35.4	21.6	1.00			1.00			1.00			1.00		
Male	55.0	64.6	78.5	1.49	1.09-2.05		2.97	1.54-5.74		1.26	0.95-1.68		1.44	1.01-2.06	
Age (years)						<0.001			0.882						
18 – 25	60.7	68.5	55.3	2.41	1.69-3.43		1.20	0.50-2.92		2.50	1.75-3.57	<0.001	1.00	0.64-1.55	0.989
26 – 33	23.7	24.2	33.0	2.18	1.46-3.25		1.84	0.91-3.71		2.42	1.46-4.00	0.001	1.38	0.78-2.46	0.271
≥ 34	15.6	7.3	11.7	1.00			1.00			1.00			1.00		
Ethnicity						0.305			0.924						
White	67.9	72.5	68.8	1.00			1.00								
Mixed race	21.3	17.7	18.8	0.78	0.47-1.27		0.87	0.45-1.68							
Black	7.8	6.5	9.4	0.78	0.52-1.18		1.18	0.66-2.13							
Others	3.0	3.3	3.0	1.04	0.60-1.80		0.99	0.48-2.02							
Education						0.988			0.726						
Up to elementary school	7.8	7.5	5.9	0.97	0.53-1.75		0.73	0.26-2.03							
Secondary school	59.2	60.0	60.1	1.03	0.66-1.60		0.98	0.57-1.69							
Undergraduate / Postgraduate	33.0	32.5	34.0	1.00			1.00								
Marital status						0.812			0.843						
Married / cohabiting	7.6	5.7	6.6	1.00			1.00								
Single	88.7	92.3	91.3	1.39	0.95-2.03		1.18	0.51-2.73							
Separated / widowed	3.7	2.0	2.1	0.73	0.45-1.16		0.65	0.16-2.58							
Occupation						0.006			0.634						
Just working	49.7	43.5	49.9	1.00			1.00								
Working and studying	32.4	32.5	30.7	1.15	0.85-1.55		0.95	0.66-1.36							
Just studying	11.9	16.4	11.3	1.57	1.00-2.46		0.94	0.41-2.15							
Neither working nor studying	6.0	7.6	8.1	1.47	0.96-2.26		1.36	0.80-2.31							

cOR: crude Odds Ratio
aOR: adjusted Odds Ratio

Table 4 (cont.)**:** Characteristics of past-year polydrug use classes identified through LCA in a sample of the nightclub population (N = 2420); São Paulo, 2013.

	Polydrug use			Univariate analysis						Multivariate analysis					
	No	Moderate	High level	Moderate polydrug use vs. No polydrug use			High level polydrug use vs. No polydrug use			Moderate polydrug use vs. No polydrug use			High level polydrug use vs. No polydrug use		
	wgt%	wgt%	wgt%	cOR	95%CI	p	cOR	95%CI	p	aOR	95%CI	p	aOR	95%CI	p
Economic status						0.179			0.828						
A	24.6	27.0	28.1	1.44	0.90-2.30		1.07	0.49-2.36							
B	53.3	56.1	48.4	1.38	1.01-1.89		0.86	0.54-1.36							
C/D/E	22.1	16.9	23.5	1.00			1.00								
Religion						0.023			0.079						
Practising	34.2	25.7	24.3	1.00			1.00								
Non-practising	40.2	36.3	44.2	1.20	0.88-1.65		1.54	0.83-2.86							
None	25.6	38.0	31.5	1.98	1.08-3.61		1.73	0.95-3.16							
Block 2															
Attendance frequency						<0.001			<0.001			<0.001			<0.001
Up to 3x/mth	63.0	47.7	30.1	1.00			1.00			1.00			1.00		
More than 3x/mth	37.0	52.3	69.9	1.87	1.44-2.43		1.79	1.47-2.18		1.79	1.47-2.18		3.50	1.96-6.25	
Music type						0.676			0.089						
Eclectic	25.9	29.3	7.8	1.00			1.00			1.00			1.00		
Country	24.2	10.5	0.4	0.39	0.27-0.56		0.06	0.01-0.60		0.43	0.30-0.61	<0.001	0.06	0.01-0.57	0.015
Funk	9.1	10.1	9.1	0.98	0.58-1.64		3.29	0.83-13.04		0.76	0.39-1.48	0.422	2.65	0.60-11.77	0.201
Electronic	19.3	29.6	70.0	1.36	0.90-2.06		12.12	6.80-21.60		1.31	0.89-1.94	0.171	9.86	5.36-18.12	<0.001
Pop-dance	9.2	6.6	0.5	0.64	0.38-1.05		0.18	0.02-1.78		0.96	0.62-1.48	0.855	0.17	0.02-1.58	0.120
Rock	2.1	4.1	1.5	1.70	1.09-2.64		2.35	1.26-4.37		1.94	1.36-2.77	<0.001	2.29	1.30-4.04	0.004
Hip-hop	2.9	6.9	10.0	2.10	1.52-2.89		11.51	7.36-17.99		1.93	1.38-2.70	<0.001	10.13	6.23-16.45	<0.001
Forró/Zouk	7.3	2.9	0.7	0.35	0.26-0.47		0.34	0.11-1.09		0.36	0.26-0.50	<0.001	0.25	0.08-0.75	0.013

cOR: crude Odds Ratio
aOR: adjusted Odds Ratio

4. Discussion

LCA was used to classify nightclub patrons of the city of São Paulo according to their drug consumption patterns over the year. A 3-class model ("no polydrug use", "moderate polydrug use" and "high level polydrug use") provided the best explanation of polydrug use patterns. “Moderate” or “high level polydrug use” were found in approximately half of the patrons.

Other studies have similarly used LCA to evaluate drug consumption patterns in specific populations and usually their best model were also a 3-class model, both in a sample of ecstasy users in Ohio, USA (Carlson et al., 2005) as between nightclub drug users in New York (Ramo et al., 2010).

However, LCA has also been used to identify polydrug use profiles in general population samples. Smith et al. (2011) described polydrug use patterns over a year for nine illicit substances among adults living in private households in Great Britain and the 3-class model best explained illicit drug use patterns for this population.

It is noteworthy that our study differs from the others because it evaluates polydrug use among nightclub patrons, i.e., a population of young adults frequenting nightclubs and thus at greater risk of exposure to any drug consumption, as the abuse of alcohol and other drugs is clearly directly related to the recreational context of nightclubs (Calafat et al., 2011).

Although the present study addresses a probabilistic sample of nightclub patrons in the city of São Paulo (including drug users and non-users), the “no polydrug use” class showed 50% of nightclub patrons engaged in BD in the past-year. Therefore, we face a different population from that presented in Smith et al. (2011) study.

In the present study, there were differences between the two classes characterised by polydrug use in their associations with the evaluated factors. Being below 34 years of age was associated with a higher probability of belonging to the "moderate polydrug use" class compared to the "no polydrug use" class. Those who frequented nightclubs with rock and hip-hop music more than three times a month showed an increased chance of belonging to both the "moderate polydrug use" and the "high level polydrug use" classes. In contrast, those who attended nightclubs with country music or forró/zouk were less likely to belong to the "moderate polydrug use" and "high level polydrug use" classes. Those frequenting nightclubs with electronic music were more likely to belong to the "high level polydrug use" class than the "no polydrug use" class.

Characteristics associated with the "high level polydrug use" class compared to the "no polydrug use" class support the findings of Ramo et al. (2010), Smith et al. (2011), Carter et al. (2013) and Quek et al. (2013) in terms of the association with male gender.

However, our study did not find a gender association for the "moderate polydrug use" class, which was also not reported in Carlson et al. (2005) study. Analysis of these findings as a whole suggests that gender differences in polydrug use can vary according to both the type of drug evaluated and the population in question. However, when considering the sample of São Paulo nightclub patrons, the study points to the fact that men are more exposed to “high level polydrug use”.

With regard to age, this study revealed an association only with the "moderate polydrug use" class compared to the "no polydrug use" class, which was also observed by Smith et al. (2011), who found that as age increases there is a decrease in the chance of residents of Great Britain belonging to the "polydrug use" class. Therefore, older age groups seem to be more protected against polydrug use.

The findings of our study suggest that choice of nightclub type and frequency of attendance were more important to an association with polydrug use classes than the effects of any variables relating to sociodemographic profile. These findings concur with the study of Calafat et al. (2007), who showed that variables relating to recreational lifestyle were better predictors of establishing drug consumption patterns than the sociodemographic variables of students in 9 European cities: the higher the frequency of night recreational events, the greater the variety of drug consumption. This relationship may suggest that the longer the subject is exposed to the nightclub environment, the more chance he has of consuming different drug types because there is often free access to different types of drugs in these establishments.

It is important to note that São Paulo nightclubs are generally characterised by the style of music played in the establishment, and their patrons have different profiles according to the musical style of the nightclub. Thus, as expected, the present study revealed an association between music and different consumption profiles: those frequenting nightclubs that played electronic and hip-hop music were more likely to belong to polydrug use classes.

However, in studies in other cultures, such as in Belgium, it appears that the nightclubs at highest risk of polydrug use are not electronic and hip-hop but pop-dance nightclubs (Van Havere et al., 2011). However, the great difficulty in such cultural comparisons is the fact that the musical styles found in each country's nightclubs are different, which limits a valid comparison. In addition, some studies have attempted to define the profile of drugs consumed in each musical style and have evaluated consumption individually without emphasis on polydrug use (Moore and Miles, 2004).

Besides, it is also important to note that public policy in each country can facilitate or difficult harm reduction interventions among nightclub patrons. Public policy control on drinking and driving can reduce this behaviour among patrons while responsible

drinking service can reduce alcohol intoxication (Babor et al, 2010). Considering that in our study a high prevalence of binge drinking was fond in the three LCA groups, free water, warnings alerting about drinking and driving risks and the implementation of public policy to control alcohol sales to intoxicated, could be implemented in all São Paulo nightclubs to improve patrons health and safety.

The main limitation of this study lies in the fact that it used polydrug use frequency in the last 12 months, to increase the number of cases; therefore, this information may be limited by a possible memory bias of the patrons, who may have underestimated their consumption. Another limitation is the acceptance rate among the sampled nightclubs (66%), which may have compromised the inclusion of certain types of nightclubs. Despite these limitations, this study has several strengths. It is the first epidemiological study of a probabilistic sample of nightclub patrons in a developing country and that uses LCA to identify polydrug use profiles. The participation acceptance rate of patrons at the nightclubs' entrances (80%) in one of the largest cities in the world and the largest city in the Southern hemisphere is another strong point.

5. Conclusion

Our study shows that individual level factors and nightclub music style can be associated to different patterns of polydrug use among patrons in São Paulo. Illicit drug users are not equally distributed among the venues, since polydrug users are more likely to be found in a certain type of nightclubs, such as electronic, hip-hop, pop-dance and rock. However, binge drinking is a high prevalent behaviour among the three identified groups and alcohol harm reduction is an important need in São Paulo nightclubs. Free water, food sales, responsible drinking service and minimum price would be possible harm reduction interventions for the three groups, while the installation of chill out areas and advice on intoxication for polydrug users would be more important especially in electronic and hip-hop venues.

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5. ARTIGO 2

Alcohol-induced risk behaviors among Brazilian nightclub patrons: a latent class analysis

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Alcohol-induced risk behaviors among Brazilian nightclub patrons: a latent class analysis

ABSTRACT

Background: International findings have shown that excessive consumption of alcohol in nightclubs was associated with violence, traffic accidents, risky sexual behaviors and a higher propensity to abuse other drugs. The aim of this study is to identify risk behavior profiles associated with alcohol consumption among patrons during or just after departure from nightclubs in São Paulo, Brazil. **Methods:** The study used a two-stage cluster sampling survey design. Data were collected using a portal survey performed on a systematic sample of nightclub patrons. Overall, 2,422 patrons were interviewed at the entrance of 31 nightclubs. Latent class analysis (LCA) was used to identify risk behavior profiles with an emphasis on risky driving, fights, alcoholic blackouts, physical complications and unsafe sex. **Results:** A 3-class LCA model was selected, with classes consisting of *low* (43%), *medium* (33%) and *high* (24%) risk patrons. Compared to patrons in the *low* risk class, patrons in the *medium* and *high* risk classes were more likely to be men (OR=2.2 [1.2;4.0] and OR=3.2 [1.8;5.8], respectively), to have engaged in binge drinking during the last year (OR=15.0 [7.2;31.3] and OR=14.3 [9.4;21.8]), to be in the highest socioeconomic stratum (OR=2.6 [1.3-5.1] and OR=2.0 [1.2;3.5]) and to have been interviewed at a hip-hop music nightclub (OR=2.8 [1.1;6.8] and OR=3.7 [1.5;9.1]). **Conclusion:** Risk behaviors were not equally distributed: patrons in *high* risk were more likely to be interviewed at electronic music nightclubs. However, risky driving was a highly prevalent behavior among patrons, and alcohol harm reduction must be implemented in São Paulo nightclubs.

Keywords: Alcohol; Binge Drinking; Alcohol-induced harm; Electronic music; Nightclub; Brazil

INTRODUCTION

Alcohol use directly affects brain chemistry by altering levels of the neurotransmitters that control behaviors and emotional processes. After using alcohol, cognitive and physical functioning are affected, reducing self-control and the ability to process information, increasing impulsiveness, making people more likely to engage in violent behavior [1, 2], unprotected sex, and physical and sexual violence and increasing the likelihood of unwanted pregnancies, traffic accidents, unintentional injuries, acute myocardial infarction, alcohol overdose [3-7] and periods of amnesia, also known as alcohol-induced blackouts [8] [9].

However, the severity of the consequences of alcohol use depends on the frequency and amount consumed [10]. A risky consumption behavior that has aroused interest in recent years is called "binge drinking" (BD) [11] or "heavy episodic drinking" [12], which is defined as the consumption of four or more and five or more servings of alcoholic on one occasion for women and for men, respectively [13] . These episodes of acute alcohol abuse not only have an influence on overall mortality but also contribute to an increasing risk of all the acute consequences described above.

The abuse of alcohol has been reported to be directly associated with the recreational context of the nightclub setting [14], thereby contributing to increased risk behaviors in regular nightclub patrons [15]. Nightclubs are places frequented mainly by youths and young adults who seek different forms of entertainment in these locations, with the use of alcohol acting as an important mediator [16]. According to population data, in Brazil, nightclubs are the places of choice for binge drinking [17, 18], which increases concerns regarding the risks to which patrons of these venues are exposing themselves. Moreover, compared to other highly populous countries, Brazil is ranked as having the second highest rate of major complications resulting from alcohol consumption, according to disability-adjusted life years lost [19].

Given the aforementioned considerations, the objectives of this paper were to evaluate how alcohol-induced risk behaviors are grouped among nightclub patrons in São Paulo and to explore how these different patterns of risk behaviors are associated with sociodemographic factors, binge drinking and music style of the venue at which the patrons were interviewed.

METHODS

Ethics committee approval

The procedures for selecting, obtaining informed consent from and protecting the human beings involved in this research were approved by the Research Ethics Committee of the Universidade Federal de São Paulo (protocol#795276).

Sampling

Nightclubs were defined as establishments that have controlled entry and exit of patrons, sell alcoholic beverages and have a dance floor. A portal survey [20] was conducted in nightclubs in the city of São Paulo during the first half of 2013, and data were collected from nightclub patrons. Cluster sampling was performed in two stages; the selection of nightclubs (first stage) constituted identifying a systematic sample of nightclubs, each with an inclusion probability proportional to the maximum capacity of the club. The second stage involved a systematic sampling of every third person in the selected nightclub's entrance queue.

To guarantee that we would have at least 30 nightclubs participate in the survey, we contacted the original 40 selected nightclubs and 7 replacements, resulting in an acceptance rate of 66% (31/47). A target sample size of 1,600 nightclub patrons was calculated considering an absolute precision of 5%, a 95% confidence interval (CI), the use of two-stage cluster sampling and a design effect of two [21]. Taking into account a possible refusal rate of 30% and a maximum loss at follow-up from entrance to exit of 40% [22], it was calculated that 2,912 nightclub patrons should initially be approached.

Sampling weights for nightclubs and patrons were calculated to correct for losses, and details of this process are presented in a supplementary file of the study conducted by Carlini et al. [23]. Details regarding the sampling procedure have been presented by Santos el al [24].

Instruments and data collection

Patrons participated in entrance and exit interviews based on a questionnaire and completed a breathalyzer test after each interview (Draguer Alcotest 7410 Plus RS). Participants received a bracelet with a unique numeric code to identify them at the nightclub exit. Initial interviews at the nightclub entrances investigated sociodemographic variables, patterns of alcohol and drug use and risk behaviors in nightclubs during the year

preceding the survey. For the present study, only entrance interview data were used. Data was registered in a tablet device.

Variables

The following aspects were evaluated as explanatory variables: sociodemographic characteristics (gender, age, education, marital status, and socioeconomic status [SES]), history of BD during the past year (5 servings of alcohol for men and 4 servings of alcohol for women consumed over period of 2 hours - a serving was defined as a 5-oz glass of wine, a 12-oz can of beer or a 1.5-oz shot of liquor, and examples of equivalence were presented to the interviewee in a figure) and the type of nightclub where the interview occurred, classified by musical style.

Each respondent was asked about his or her risk behaviors using the following question: "*Last year, have some of these events occurred inside or shortly after leaving the nightclub?*":

1. drinking and driving,
2. received a ride from a driver who drank,
3. traffic accidents due to alcohol intoxication,
4. got involved in a fight,
5. alcoholic blackouts,
6. passing out due to alcohol,
7. alcoholic coma,
8. not remembering if intercourse that occurred during alcohol intoxication was consensual,
9. unprotected sexual relations during alcohol intoxication,
10. regretted sexual relations during alcohol intoxication, and
11. sex under the influence of alcohol.

A binary response to each of these questions served as the basis for generating the latent classes. As questions numbered one to three were grouped and renamed "**Risky Driving**". Questions number four and five were renamed "**Fights**" and "**Blackouts**", respectively. The questions numbered six and seven were grouped under the name "**Physical Effects of Alcohol**". The questions numbered eight to ten were grouped together and called "**Risky Sex**". The eleventh question was renamed "**Sexual Intercourse Under the Influence of Alcohol**".

SES was evaluated using a standardized index known as the "Brazilian Economic Classification" [25]. This scale was used to classify participants into subgroups "A" to "E" (where A corresponded to the highest socioeconomic stratum - SES).

Musical styles were categorized into eclectic (plays several musical styles on the same night), country, funk, electronic, dance-pop, rock, hip-hop and forró according to the type of music played in the nightclubs and recorded by field staff during data collection.

Statistical analysis

To address the first question about the possible existence of distinct groups of risk behaviors during the past year among nightclub patrons in São Paulo, a weighted latent class analysis (LCA) [26] was performed using venues as clusters.

LCA is a statistical modelling technique based on the premise that associations between a set of observed categorical variables (i.e., risk behaviors) may be explained by a finite number of mutually exclusive latent classes. Based on recorded responses, individuals received a probability of membership in each level or class of latent variables [26]. **Figure 1** depicts the conceptual relationships between the indicator variables (the different risk behaviors), the latent classes, and the covariate predictors for the latent class model constructed during these analyses.

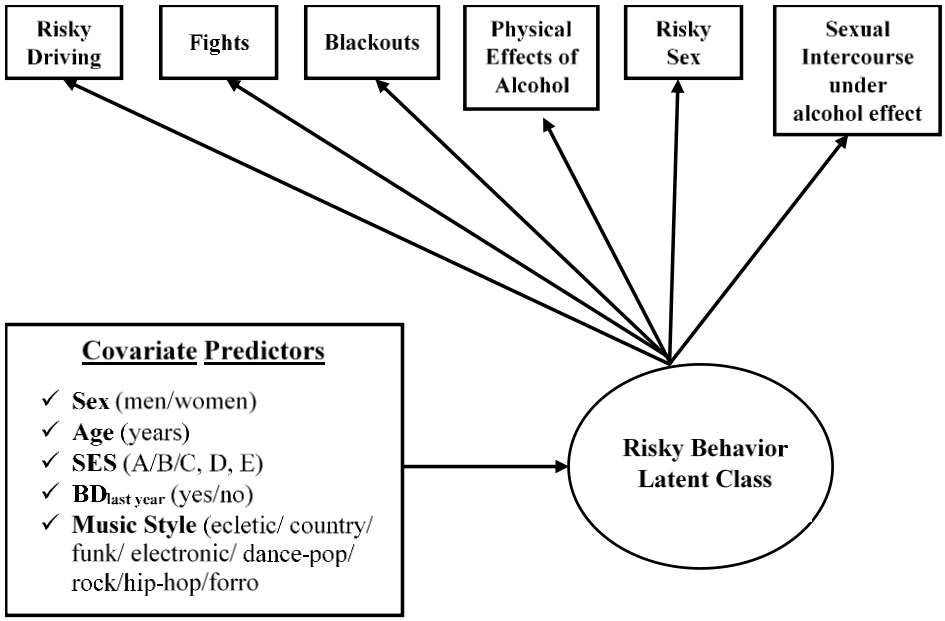

Figure 1: Latent class model of risk behaviors associated with alcohol consumption among nightclub patrons of São Paulo with covariate predictors. SES - standardized index known as the "Brazilian Economic Classification" and BD - binge drinking.

Following the advice of Nylund et al. [27], an iterative modelling process was used to produce one- through six-class models using Mplus v7 [28]. The significance of covariates as predictors of latent class membership were tested using multinomial logistic regression analysis after a LCA model was fit using a 3-step procedure that took into account the uncertainty associated with assigning latent class membership to individuals [29]. The results are presented as weighted percentages (wt%), adjusted odds ratios (aOR), 95%CI and p-values.

RESULTS

A total of 3,063 individuals were approached at the 31 nightclubs that participated in the study, and 2,422 interviews (79.1% acceptance rate at the time of entrance) were performed. There was no significant gender difference between those who consented and did not consent to participate in the interview at nightclub entry (p=0.945).

Four interviews had data missing for all of the variables used for the construction of latent classes; therefore, the sample size used was 2,418 interviews.

Table 1 presents the sociodemographic characteristics of the nightclub patrons, which showed that most of the patrons were male (60.8%), approximately 88% were younger than 33 years-old, 53.7% belonged to the middle SES, approximately 90% were single, and 68% had engaged in $BD_{last\ year}$; additionally, patrons were more frequently interviewed in electronic music nightclubs (28.2%).

Table 1: Sociodemographic characteristics of nightclub patrons (N=2,418) in the city of São Paulo in 2013.

Variables	N	Wgt%	95%CI
Sociodemographics			
Gender			
Male	1,474	60.8	[48.3; 72.0]
Female	944	39.2	[28.0; 51.7]
Age group (years)			
18 – 25	1,355	62.9	[51.9; 72.6]
26 – 33	683	24.9	[18.8; 32.1]
≥ 34	380	12.2	[7.5; 19.5]
Education			
Up to Elementary school	138	7.5	[4.5; 12.3]
Secondary	1,334	59.6	[53.0; 65.8]
University/Postgraduate	919	32.9	[24.8; 42.3]
Marital status			
Married/cohabitating	182	6.8	[3.8; 11.7]
Single	2,122	90.3	[84.2; 94.2]
Separated/widowed	99	2.9	[1.8; 4.6]
Socioeconomic status			
A	638	25.8	[19.0; 63.8]
B	1361	53.7	[50.5; 56.9]
C/D/E	421	20.5	[14.9; 27.5]
Binge Drinking last year	1640	67.7	[63.3; 71.9]
Nightclubs			
Music style			
Eclectic	536	25.1	[10.8; 48.1]
Country	218	17.0	[3.5; 53.5]
Funk	151	9.5	[2.2; 33.2]
Electronic	663	28.2	[11.3; 54.7]
Pop-dance	261	7.4	[1.8; 26.1]
Rock	240	2.8	[0.7; 10.1]
Hip-hop	164	5.0	[0.8; 24.8]
Forró/Zouk	187	5.1	[1.1; 20.8]

Latent classes were created based on the risk behavior indicator variables reported as occurring during the preceding year. A total of six latent class models was examined (**Table 2**). The VLMR test p-value of the 2-class model was significant, but the 4-class model demonstrated a lower BIC value. The lowest SSABIC value and highest entropy value were demonstrated by the 5-class model. Overall, AIC values decreased as the number of classes increased. When the BIC value was considered as the most reliable measure [27], selection of the 4-class model was favored. However, given the study setting, the 3-class model was selected because it showed similar characteristics to those presented

by the models with 2 and 4 classes but demonstrated one difference: this model had greater interpretability within the context of the evaluated event.

Table 3 shows the weighted probabilities of risk behavior occurrence during the previous year for each latent class of the selected 3-class model. The classes were defined as "Low Risk", corresponding to 43% of the patrons (95%CI [36.0%;50.1%]); ''Medium Risk'' (33%, 95%CI [28.5%;37.3%); and ''High Risk'' (24%, 95%CI [20.7%;28.7%]). Patrons in the ''low risk'' class had an average likelihood of risky driving (35.2%), low probabilities of blackouts and sexual intercourse while under the influence of alcohol (8.1% and 7.7%, respectively) and negligible probabilities of engaging in the other risk behaviors (<5%). Patrons in the ''medium risk'' class had a high probability of risky driving (90.0%), moderate probabilities of blackouts (59.1%) and sexual intercourse while under the influence of alcohol (56.5%), a low probability of suffering from the physical effects of alcohol (15.9%) and low probabilities of engaging in the other risk behaviors (<15%). Patrons in the ''high risk'' class were at increased risk of engaging in risky sex, sexual intercourse while under the influence of alcohol and risky driving (>80%) and had a moderate probability of blackouts (60.6%) and a low probability of suffering from the physical effects of alcohol (14.7%). **Figure 2** shows the probabilities associated with each of the risk variables used to construct the latent classes.

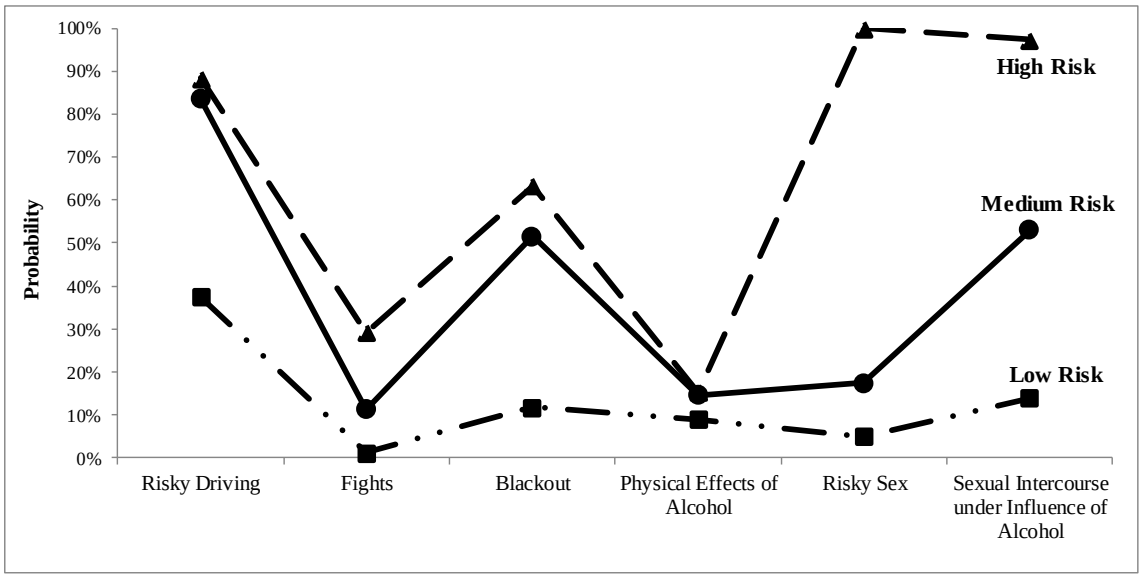

Figure 2: Weighted probability of engaging risk behaviors associated with alcohol consumption during the past 12 months given latent class membership among nightclub patrons (N=2,418) in the city of São Paulo, 2013.

Table 2: Latent class fit statistics for models with 1 to 6 classes.

	Goodness of fit statistics					Proportion of sample in each class					
Model	**AIC**	**BIC**	**ssaBIC**	**p-VLMR**	**Entropy**	**Class1**	**Class 2**	**Class 3**	**Class 4**	**Class 5**	**Class 6**
Class 1	15,670.325	15,705.069	15,686.005	-	-	1.00					
Class 2	14,417.742	14,493.021	14,451.717	<0.001	0.656	0.36	0.64				
Class 3	14,330.686	14,446.500	14,382.955	0.481	0.606	0.24	0.33	0.43			
Class 4	14,264.607	14,420.955	14,335.170	0.753	0.616	0.42	0.21	0.17	0.20		
Class 5	14,244.546	14,441,429	14,333.404	0.215	0.659	0.01	0.39	0.15	0.12	0.33	
Class 6	14,237.155	14,474.574	14,344.307	0.444	0.707	0.13	0.11	0.01	0.33	0.39	0.03

AIC, Akaike Information Criterion; BIC, Bayesian Information Criterion; ssaBIC, sample size adjusted Bayesian Information Criterion; p-VLMR, p-value associated with Vuong Lo Mendell Rubin test

Table 3: Conditional prevalence rates of risk behaviors associated with alcohol consumption reported as occurring during the previous year for each latent class among nightclub patrons in the city of São Paulo in 2013 (N=2,418).

	Latent Classes									**Total** (N=2,418)		
	Low Risk (N=1,038)			**Medium Risk** (N=791)			**High Risk** (N=589)					
Risk behavior[a]	N	Wt%	95% CI	N	Wt%	95% CI	N	Wt%	95% CI	N	Wt%	95% CI
Risky Driving	380	35.2	[30.6; 40.2]	701	90.0	[86.9; 92.5]	558	86.2	[81.2; 90.1]	1,639	65.4	[60.0; 70.5]
Fights	8	0.8	[0.2; 3.3]	104	13.0	[9.4; 17.6]	149	25.8	[19.9; 32.7]	261	10.9	[8.5; 13.8]
Blackout	73	8.1	[5.9; 11.0]	446	59.1	[53.2; 64.6]	385	60.6	[55.4; 65.6]	904	37.6	[32.2; 43.3]
Physical Effects	7	0.7	[0.2; 1.9]	117	15.9	[11.6; 21.4]	82	14.7	[10.7; 19.8]	206	9.1	[7.1; 11.4]
Risky Sex	21	2.3	[1.6; 3.2]	90	13.4	[9.3; 18.9]	589	100.0	-	746	29.7	[26.0; 33.8]
Sexual intercourse under the influence of alcohol	76	7.7	[5.6; 10.5]	481	56.5	[48.2; 64.4]	589	100.0	-	1,196	46.1	[38.9; 53.5]

a. Risk behavior associated with alcohol consumption during previous 12 months.

As **Table 4** shows, after covariate adjustment and using the "low risk" class as the reference category, those in the ''medium risk'' class were more likely to have engaged in $BD_{last\ year}$ (aOR=15.0, 95%CI [7.2;31.3]), to be male (aOR=2.2, 95%CI [1.2;4.0]), to be in the highest SES (aOR=2.6, 95%CI [1.3;5.1]) and to have been interviewed at a hip-hop nightclub (aOR=2.8, 95%CI [1.1;6.7]). Those who were interviewed at country music and forró/zouk nightclubs were 84% and 51% less likely to belong to the ''medium risk'' than the ''low risk'' class, respectively (p<0.001). Those in the ''high risk'' class were more likely to have engaged in $BD_{last\ year}$ (aOR=14.3, 95%CI [9.4;21.8]), to be male (aOR=3.2, 95%CI [1.8;5.8]), to be in the highest SES (aOR=2.0, 95%CI [1.2;3.5]), and to have been interviewed at an electronic music nightclub (aOR=2.0, 95%CI [1.2;3.4]) or hip-hop nightclub (aOR=3.7, 95%CI [1.5;9.1]). However, those who were interviewed at country music nightclubs were 39% less likely to belong to the ''high risk'' than the ''low risk'' class (p=0.027).

Table 4: Multinomial logistic regression model for the associations between musical style of venue, nightclub patron characteristics and risk behaviors and alcohol consumption class membership.

	Medium risk vs. Low risk			**High risk vs. Low risk**		
Covariate	aOR	95% CI	p	aOR	95% CI	p
Gender						
Female	1			1		
Male	**2.21**	**[1.23; 3.99]**	**0.008**	**3.24**	**[1.82; 5.80]**	**<0.001**
Age (years)	0.99	[0.95; 1.04]	0.718	1.00	[0.97; 1.02]	0.686
SES						
A	**2.59**	**[1.32; 5.06]**	**0.005**	**2.01**	**[1.16; 3.49]**	**0.013**
B	1.45	[0.55; 3.87]	0.455	1.05	[0.52; 2.11]	0.889
C, D or E	1			1		
$BD_{last\ year}$						
No	1			1		
Yes	**14.98**	**[7.17; 31.31]**	**<0.001**	**14.32**	**[9.40; 21.83]**	**<0.001**
Music type						
Eclectic	1			1		
Country	**0.14**	**[0.06; 0.31]**	**<0.001**	**0.61**	**[0.39; 0.95]**	**0.027**
Funk	0.91	[0.54; 1.54]	0.725	1.39	[0.89; 2.18]	0.147
Electronic	1.21	[0.55; 2.66]	0.628	**2.00**	**[1.17; 3.41]**	**0.011**
Pop-dance	0.52	[0.23; 1.22]	0.133	0.74	[0.29; 1.91]	0.535
Rock	0.94	[0.43; 2.08]	0.883	1.26	[0.76; 2.10]	0.374
Hip-hop	**2.78**	**[1.14; 6.76]**	**0.025**	**3.72**	**[1.52; 9.09]**	**0.004**
Forró/zouk	**0.49**	**[0.32; 0.76]**	**0.002**	0.64	[0.39; 1.07]	0.088

Results based on 2,405 interviews with complete data on all covariates.
SES, Socioeconomic status; *BD*, binge drinking

DISCUSSION

Three distinct classes of risk behaviors associated with alcohol consumption were identified among nightclub patrons in the city of São Paulo, and patrons were categorized into a *low*, *medium* or *high risk class.* Almost 55% of those interviewed were categorized into the "medium risk" and "high risk" classes. Individuals in these classes were more likely to be male, to be in the highest economic stratum, to have engaged in $BD_{\text{last year}}$ preceding the survey, and to be interviewed at a hip-hop music nightclub and less likely to be interviewed at a country music nightclub. Patrons who were interviewed at forró/zouk music nightclubs were less likely to belong to the "medium risk" class; on the other hand, patrons who were interviewed at electronic music nightclubs were more likely to belong to the "high risk" class. It was also of note that the category of behaviors that most differentiated between the medium risk and high risk classes was risky sexual behaviors, which was most prevalent in the high risk class.

This study was innovative in that it focused on the alcohol-induced risk behaviors reported by a probabilistic sample of nightclub patrons in the most populous city in the Southern Hemisphere. According to Huckle et al. [30], increased exposure to nightclubs, even if consuming only one drink per exposure, was associated with increased total consequences of alcohol use. This additional risk may be associated the nightclub environment, the people in the nightclub setting, or a mixture of both. In addition, the authors also reported that the amount of alcohol consumed in bars and nightclubs was less strongly associated with the total consequences of alcohol use than was increased exposure to these recreational contexts, suggesting that bar and nightclub goers were exposed to a higher risk of incurring alcohol-related negative effects than were members of the general population. In these venues, alcohol may serve as a mediator of patron behavior, as suggested by Demant [16]. On the other hand, our study increased the body of understanding regarding the alcohol-related negative effects associated with attending nightclubs, showing that some individual and contextual factors, such as male gender, high socioeconomic status and binge drinking, may increase the odds of membership in a group with a greater level of exposure to these alcohol effects.

It has been reported that men tend to be more exposed to the risks of alcohol abuse in different settings [31]. However, our finding indicating that high socioeconomic status was a risk factor for high risk behaviors was in accordance with other Brazilian data obtained during evaluations of students and the general population [32, 33], but no consensus regarding this issued has yet been established in the literature [34, 35].

Nevertheless, the type of music played at the nightclub at which interviews took place was more strongly associated with membership in a higher risk class than were individual factors, suggesting that the environment plays an important role in nightclub patron behavior. In this study,

those who were interviewed at nightclubs playing electronic music demonstrated a higher probability of belonging to the high risk class. These findings are in accordance with those of Calafat et al. [36], who showed that variables related to recreational lifestyle factors were better predictors of establishing alcohol and drug use patterns than were sociodemographic characteristics among students in nine European cities, with the most notable risks associated with recreational habits identified in those belonging to rock, rave and house subcultures. Moreover, according to Lozon and Bensimon [37], partying at electronic music events has been found to have a negative influence on listeners and be associated with alcohol abuse, opposing authority and violent behavior.

Regarding risk behaviors engaged in while under the influence of alcohol, our study showed that risky driving was the most prevalent of the investigated alcohol-induced risk behaviors. Similarly, the results of a Brazilian nationally representative household survey revealed that more than half of current drinkers reported BD, and equally alarmingly, nearly a quarter of current drinkers reported driving after drinking [38]. These data draw attention the fact that although Brazil has one of the most stringent drinking and driving laws (Law No. 12.760/2012), known in Brazil as the "dry law", this legislation did not seem to intimidate nightclub patrons or the general population. In this sense, these findings suggest the need for increased law enforcement and more sobriety checkpoints in Brazilian cities.

Another behavior that was highly prevalent among patrons in the medium and high risk classes were alcohol-induced blackouts, which was reported by approximately 60% of respondents in each of these risk classes. According to a systematic review of clinical research focused on alcohol-induced blackouts, the majority of publications on blackouts examined BD and alcohol-related consequences in young adults and college students and reported prevalence rates ranging from 20 to 55% in diverse populations and settings [9]. However, this review emphasized the difficulty associated with comparing studies because each author used a different timeframe measure for event occurrence, varying from a day to lifetime history of blackouts. Nevertheless, in this study, it was noted that patrons belonging to the medium and high risk classes reported a greater prevalence of blackouts during the past year than was identified in other studies.

It is also important to note that public policy may facilitate harm reduction related to alcohol-induced risk behaviors and has been considered the most effective way to reduce the harm caused by alcohol on individuals and societies [39]. The most important policies within the present scenario would involve legislating law enforcement concerning drink and driving, alcohol taxation and responsible drinking services.

The main limitation of this study lies in the fact that it used a timeframe of 12 months for the assessment of risk behaviors associated alcohol consumption, and the information obtained from

participants may have been underestimated due to a possible memory bias. Another limitation was the acceptance rate among the sampled nightclubs, which may have compromised the inclusion of certain types of clubs. Despite these limitations, the study has several strengths, including the participation rate among patrons at the nightclub entrances.

Our study showed that individual level factors and nightclub music style may be associated with engaging in different risk behaviors associated with alcohol consumption among patrons in São Paulo. Risk behaviors were not equally distributed among the venues because high risk patrons were more likely to be interviewed at electronic music nightclubs. However, risky driving was a highly prevalent behavior among patrons, and alcohol harm reduction must be implemented in São Paulo nightclubs. Free water, food sales, implementation of a responsible drinking service and minimum pricing constitute possible harm reduction interventions that may reduce alcoholic harm in the 3 classes of patrons.

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6. ARTIGO 3

Web-based intervention to prevent harmful alcohol use among nightclub patrons: opposite effects according to baseline alcohol use disorder classification

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Web-based intervention to prevent harmful alcohol use among nightclub patrons: opposite effects according to baseline alcohol use disorder classification

Abstract

This study aimed to test the effectiveness of a web-based intervention to prevent alcohol abuse among nightclub patrons. A probabilistic sample of patrons from 31 nightclubs in São Paulo, Brazil, was invited to respond to an online screening with the Alcohol Use Disorders Identification Test (AUDIT). A total of 1057 patrons met the inclusion criteria to participate in the randomized controlled trial, with data collection at times 0, 3, 6 and 12 months. Participants were classified on the baseline in two AUDIT score groups: a "high risk" group (AUDIT≥8; 44%) and a "low risk" group (AUDIT<8; 56%). In both groups, the intervention group was exposed to a single dose of a personalized normative feedback screen with information on the participant's alcohol consumption and its potential consequences. After 12 months, no differences were found between the intervention and control situations in both risk groups. In the "high risk" group, there were significant reductions of both the AUDIT score and the prevalence of binge drinking (BD) over time in both the control and intervention groups. In addition, an effect of the intervention was observed at 6 months, i.e., there was an estimated reduction of 13% in favor of the intervention group for the AUDIT score (OR=0.87; 95%CI 0.76-1.00). In the "low risk" group, both control and intervention patrons increased their AUDIT scores. The results suggest that the time effect of participating in the study may have a beneficial outcome in reducing harmful drinking among patrons in the "high risk group".

Keywords: Web-based intervention; alcohol use disorders; AUDIT; nightclub patrons; Brazil

INTRODUCTION

Nightclubs are important locations for leisure and socialization for young people worldwide; however, these establishments are characterized by high alcohol abuse rates (Calafat et al., 2011). Interventions are needed to reduce risky patterns of alcohol use and its consequences in this group (Calafat, 2003).

To identify the frequency, quantity and consequences of alcohol abuse, the World Health Organization (WHO) has developed the Alcohol Use Disorders Identification Test (AUDIT) (Babor et al., 2001). As an assessment instrument, there is growing evidence that AUDIT is a rapid and effective method for identifying these patterns (Reinert and Allen, 2007). AUDIT has been widely used as a screening test to determine the risk-drinking patterns of medical patients and college students (Berner et al., 2007).

Recently, internet-based interventions have been tested in developed countries, especially among young people and/or students (Tait et al., 2010; Rooke et al., 2010), using an approach of social norms. These interventions are showing success in reducing alcohol harm among college students (Kypri et al., 2009). This type of approach recognizes that individuals, particularly young people, tend to overestimate the alcohol consumption of their colleagues, a misperception that leads them to drink more than they would otherwise. The social norms approach (Kypri and Langley, 2003; McAlaney et al., 2011) aims to reduce these misperceptions and, consequently, the individual consumption of alcohol through normative feedback. The personalized messages address personal information, such as the individual's drinking profile and its risk factors, along with comparisons with other profiles and tips for reducing alcohol-related damage (Walters et al., 2005; Palfai et al., 2014), comparing the individual's consumption with the pattern of the general population (Riper et al., 2009). This type of tool has the advantage that it can be used in large-scale assessments due to its easy accessibility and low cost (White et al., 2010), in addition to respecting the privacy of participants (Simon-Arndt et al., 2006).

International studies have been using the web-based AUDIT as a tracking tool of harmful alcohol consumption in college students (Kypri et al., 2009), showing a significant reduction of alcohol consumption after the use of web-based personalized normative feedback (Lewis et al., 2014; Kypri et al., 2009). Given that the nightclub population is composed of mostly college students (Sanchez et al., 2015), these individuals can also benefit from web-based personalized feedback. Therefore, interventions among nightclub patrons that are aimed to reduce problems related to harmful alcohol use are required and promising (Warpenius et al., 2010), making the present study innovative by proposing that nightclub patrons have their alcohol consumption screened through AUDIT and that they be subjected to web-based interventions. Thus, the objective

of this study was to test a web-based intervention to reduce harmful alcohol use and binge drinking (BD) among nightclub patrons in the city of São Paulo.

METHODS

SAMPLE

The data used in this study originated in a portal survey study (Voas et al., 2006) called "Balada com Ciência" conducted in 2013/2014 to diagnose alcohol and drug use and other risk behaviors among nightclub patrons in the megacity of São Paulo, Brazil (Carlini et al., 2014; Santos et al., 2015). Sampling details of the cross-sectional study are found in Sanchez et al. (2015).

DATA COLLECTION AND INSTRUMENTS

Subjects were systematically approached at the lines of 31 nightclubs that were randomly selected by probability proportional to size. The study included three steps: face-to-face interviews at the nightclub entrance and exit and a web-based online questionnaire that was applied the next day. In this last phase, the participants were recruited for a web-based randomized controlled trial (RCT).

Patrons who agreed to participate in the study answered the first stage of the questionnaire on sociodemographic variables, the practice of pre-drinking, alcohol use patterns, drug use and other risk behaviors in nightclubs in the past 12 months prior to the interview. The patrons also had their breath alcohol concentrations (BrACs) measured at the time of the interview by means of a breathalyzer, and each patron received a bracelet with a unique numeric code for identification at the time they exited the nightclub.

At the nightclub exit line, the same participating patrons (identified by their bracelets) were approached once more and invited to answer another questionnaire regarding their use of alcohol, illicit drugs and other risk behaviors they could have engaged in while inside the nightclub. At the end of the exit interview, each individual's BrAC was measured once more. Additionally, a project folder containing information regarding the post-nightclub questionnaire that would be sent by e-mail the next day was handed to the participants.

On the day after the nightclub interview, the link to the online post-nightclub questionnaire was sent by e-mail to the interviewees.

The emails sent the day after the survey contained a link to a new questionnaire, hosted on the website www.baladacomciencia.com.br, with items covering (1) questions regarding patron risk behaviors after exiting the nightclub; (2) demographics (sex, age, weight, height); (3) drinking in the last 12 months (yes/no); and (4) a 10-item AUDIT.

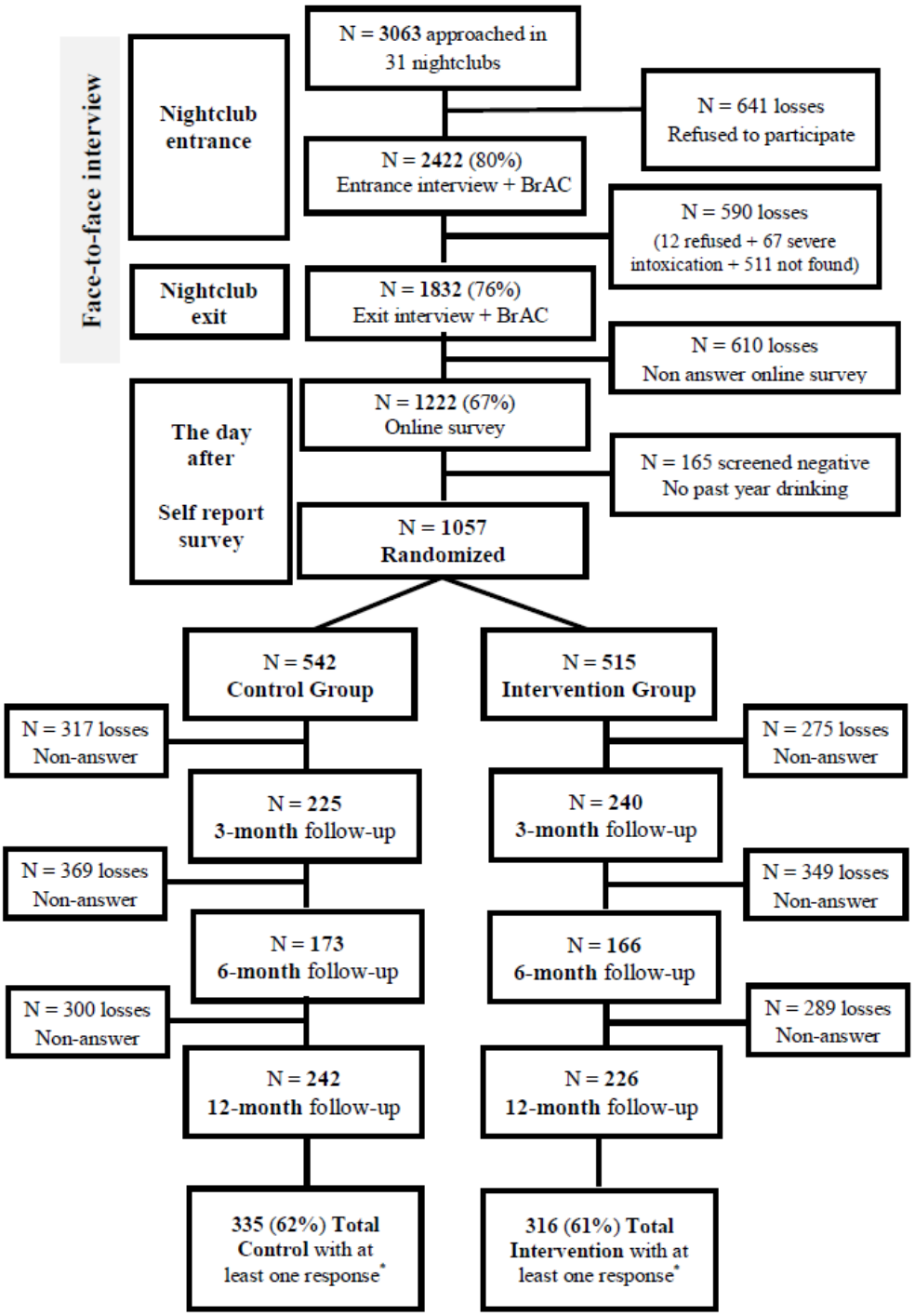


Figure 1: Trial flowchart. *Analyses using random-effects models incorporated participants with at least 1 post-randomization response.

RANDOMIZATION AND INTERVENTION

Figure 1 shows the flowchart for patron recruitment and data collection for the "Balada com Ciência" portal survey and the two-arm, parallel, randomized controlled trial.

Patrons who answered "*yes*" for the item "*drinking in the last 12 months*" were invited to participate in the RCT of the digital intervention with personalized feedback. They were randomly assigned to the control group (screening only) or to the intervention group by the use of an algorithm for stratified permuted block randomization, considering sex, age group and AUDIT score in the random allocation.

The intervention, applied only at baseline, consisted of (1) an AUDIT score with an explanation of the associated health risk and information about how to reduce that risk; (2) the respondent's heaviest BrAC between that obtained with the breathalyzer at the entrance/exit of the nightclub and the one calculated for the response about the hardest episode reported in the last 4 weeks, with information on behavioral and traffic accident relative risks (Zador et al., 2000), plus a reminder of the fines and penalties established in Brazilian traffic law (law 11705/08) and the possibility of the occurrence of risky sexual behavior between alcohol-intoxicated people; (3) estimates of monetary expenditure per month and year; (4) bar graphs comparing episodic and weekly consumption with that other people of the same age and sex, using data from a general population alcohol household survey from 2006 (Laranjeira et al., 2007); and (5) a web page offering facts about alcohol and tips for reducing the risk of alcohol-related harms. Participants in the control group received no feedback and saw only a thank-you screen after completing the data collection instrument.

FOLLOW-UP AND OUTCOMES

At 3, 6 and 12 months after the initial assessment, a new email was sent containing a link directing the participants to the study website where they could complete the follow-up questionnaire. If they did not access the link within 3 days, a new link was sent, in addition to an SMS (mobile phone) message informing the participants about the email. After three attempts without a response, the participant was contacted via telephone and informed about the questionnaire link that had been sent via email.

The main instrument used was AUDIT, in the form of an online, self-administered questionnaire. Sociodemographic data were obtained from the initial database, i.e., the face-to-face interviews made at the entrance of nightclubs, as described in Santos et al. (2015).

There were two planned primary outcomes: (1) the prevalence of BD in the past month and (2) the AUDIT score (range, 0-40).

Past month BD refers to the following AUDIT question: "*In the last 4 weeks, what was the largest amount of alcohol drinks that you consumed in a single occasion*?" This question was open, but for analytical purposes, the answer was categorized as ***Yes*** when the response was five or more doses for men and four or more for women.

The AUDIT score measured the alcohol consumption risk level of the respondents, where a score of 0 to 7 was classified as "low risk", 8 to 14 as "risk", 15 to 19 as "harmful use" and 20 to 40 as "dependence" (Saunders et al., 1993). The model adjustment variables used were the following sociodemographic characteristics: "sex" (male; female), "age" (mean ± standard deviation) and "socioeconomic status" (SES) obtained from the of Brazilian Association of Population Studies (Associação Brasileira de Estudos Populacionais - ABEP, 2012) socioeconomic level classification (A = high; B = middle-high; C = middle; D = middle-low; E = low; note that C, D and E were grouped due to the small numbers of cases).

STATISTICAL ANALYSIS

The analyses were stratified in two large risk groups, according to AUDIT scores, patrons of "low risk" (AUDIT score < 8) and patrons of "high risk" (AUDIT score ≥ 8), to address the possible difference of initial risk profile in the intervention effect. The primary outcomes were analyzed for panel data using Stata 13.1 software (StataCorp, College Station, Texas) with exchangeable matrix correlation. For the evaluation of temporal changes in the proportion of patrons that engaged BD in the past month, we used a generalized linear mixed model with the *xtlogit* procedure (Laird and Ware, 1982; Fitzmaurice et al. 2004). AUDIT score changes were analyzed with negative binomial regression using the *xtnbreg* procedure (Horton et al., 2007). All models included a random intercept to account for clustering within participants and fixed effects for group, follow-up assessment and their interaction. The interaction term allowed differences in the intervention effect between follow-up assessments. The results of the intention-to-treat hypothesis (randomization effect on outcome) are presented as odds ratios (ORs) and rate ratios (RRs), respectively, with a level of significance of 5%.

We described patterns of missing values and compared those observed and those missing in terms of baseline characteristics (no post-randomization data available) and each follow-up to assess whether unavailability for follow-up was different according to randomization group and identify attrition profile. While non-differential missingness of baseline quantities by randomization group does not rule out non-ignorable differential missingness, it does provide some reassurance that the unobserved participants did not drastically differ from the observed ones.

ETHICS COMMITTEE APPROVAL

This research was approved by the Research Ethics Committee of the Federal University of São Paulo (Universidade Federal de São Paulo-UNIFESP) (protocol number 21477), conducted between 2013 and 2014 and registered in the Brazilian Clinical Trials Registry of the Ministry of Health (Registros Brasileiros de Ensaios Clínicos - REBEC) (protocol number RBR- 35bkzc).

RESULTS

Table 1 presents, in each of the stratified groups ("high risk" and "low risk"), summary measures describing the profile and homogeneity between the two study groups (control and intervention) at baseline. Most randomly selected nightclub patrons were men (57.5%) from higher social classes (A or B, 85%), and the most frequent age group and marital status were 18 to 25 years of age (57%) and single (90%), respectively. Regarding education level, more than half of the nightclub patrons had completed high school.

Table 2 presents the profile of losses over time in each AUDIT-stratified group, according to study groups. For the "high risk" group, the baseline AUDIT scores were similar between those who responded and those who did not respond to follow-up at 3 months (mean difference, 0.40 points; 95% confidence interval [CI]: -0.35;1.16), 6 months (mean difference, 0.25 points; 95%CI: -0.55;1.04) and 12 months (mean difference, -0.10 points; 95%CI: -0.86;0.65). No statistically significant difference was observed between those who responded and did not respond for any of the three follow-up times. The "low risk" group also presented similar baseline AUDIT scores between those who responded and did not respond to follow-up at 3 months (mean difference, -0.22 points; 95% CI: -0.58;0.15), 6 months (mean difference, -0.05 points; 95%CI: -0.44;0.35) and 12 months (mean difference, 0.08 points; 95%CI: -0.28;0.45). In this group, men were more likely than women to not respond at both 3 months (p=0.001) and 6 months (p=0.030); at 12 months, there was no difference between sexes for those who responded and did not respond (p=0.170). Those who did not respond were older than those who responded at the three follow-up times: 3 months (mean difference, 1.07 years; 95%CI: -0.18;2.32), 6 months (mean difference, 1.12 years; 95%CI: -0.23;2.46) and 12 months (mean difference, 1.89 years; 95%CI: 0.65;3.14). However, a significant difference was only observed at the 12-month follow-up (p=0.003).

Table 1: Sociodemographic characteristics and alcohol use according to AUDIT score and group.

	Total (N = 1057)				**High Risk** (N = 465)				**Low Risk** (N = 592)			
	Intervention (N = 515)		**Control** (N = 542)		**Intervention** (N = 224)		**Control** (N = 241)		**Intervention** (N = 291)		**Control** (N = 301)	
	N	%	N	%	N	%	N	%	N	%	N	%
Sex												
Male	287	55.7	321	59.2	136	60.7	164	68.1	151	51.9	157	52.2
Age (years) Mean (SD)	25.8 (6.8)		26.5 (7.4)		24.3 (5.7)		25.0 (6.2)		27.0 (7.3)		27.7 (8.1)	
Age group												
18 – 25 years	300	58.2	304	56.1	149	66.5	155	64.3	151	51.9	149	49.5
26 – 33 years	145	28.2	153	28.2	59	26.3	65	27.0	86	29.5	88	29.2
≥34 years	70	13.6	85	15.7	16	7.2	21	8.7	54	18.6	64	21.3
SES												
A	135	26.2	152	28.0	68	30.4	71	29.5	67	23.0	81	26.9
B	299	58.1	312	57.6	123	54.9	138	57.2	176	60.5	174	57.8
C/D/E	81	15.7	78	14.4	33	14.7	32	13.3	48	16.5	46	15.3
Education level												
Elementary school	13	2.6	15	2.8	6	2.7	6	2.5	7	2.5	9	3.0
High school	278	54.8	285	53.1	136	61.5	136.	56.7	142	49.6	149	50.2
College/Graduate degree	216	42.6	237	44.1	79	35.8	98	40.8	137	47.9	139	46.8
Marital status												
Single	463	90.2	485	89.6	215	96.0	221	92.1	248	85.8	264	87.7
AUDIT score Mean (SD)	7.5 (5.3)		7.6 (5.6)		12.4 (4.0)		12.8 (4.2)		3.8 (2.2)		3.5 (2.2)	
Drinking summary data[a]												
Drinks alcohol 2 or more times per week	120	23.3	150	27.7	91	40.8	118	49.0	29	10.0	32	10.6
No. of standard drinks per typical drinking occasion, mean (SD)	2.8 (2.3)		2.8 (2.7)		3.8 (2.8)		3.9 (2.4)		2.0 (1.4)		1.9 (1.5)	
Alcohol dependence subscale score, mean (SD)	1.1 (1.5)		1.0 (1.5)		2.0 (1.7)		2.0 (1.8)		0.3 (0.7)		0.3 (0.6)	

Abbreviations: SD: standard deviation. AUDIT, Alcohol Use Disorders Identification Test.

[a]AUDIT items 1 and 2.

[b]Sum of scores for AUDIT items 4 through 6.

Table 2: Unavailable for follow-up analysis according to group and AUDIT score at baseline.

	High Risk					Low Risk				
	Intervention		Control			Intervention		Control		
	N	%	N	%	p	N	%	N	%	p
Missing at 3 mo	122	54.5	145	60.2	0.214	153	52.6	172	57.1	0.264
Men	78	63.9	100	69.0	0.385	95	62.1	95	55.2	0.210
Age, mean (SD), y	24.3 (5.9)		24.9 (6.7)		0.464	26.4 (6.9)		27.3 (7.9)		0.292
SES					0.954					0.110
A	34	27.9	38	26.2		34	22.2	41	23.8	
B	70	57.4	85	58.6		85	55.6	108	62.8	
C/D/E	18	14.7	22	15.2		34	22.2	23	13.4	
AUDIT score at baseline mean (SD)	12.6 (3.8)		12.9 (4.3)		0.581	3.7 (2.3)		3.4 (2.2)		0.313
Missing at 6 mo	145	64.7	164	68.0	0.449	204	70.1	205	68.1	0.599
Men	88	60.7	111	67.7	0.200	115	56.4	110	53.7	0.581
Age, mean (SD), y	24.3 (5.8)		25.0 (6.6)		0.330	26.4 (7.0)		27.5 (7.9)		0.147
SES					0.837					0.297
A	43	29.6	45	27.5		49	24.0	56	27.3	
B	80	55.2	96	58.5		117	57.4	122	59.5	
C/D/E	22	15.2	23	14.0		38	18.6	27	13.2	
AUDIT score at baseline mean (SD)	12.6 (3.9)		12.8 (4.2)		0.596	3.8 (2.2)		3.5 (2.3)		0.300
Missing at 12 mo	120	53.6	137	56.8	0.478	169	58.1	163	54.1	0.336
Men	76	63.3	91	66.4	0.604	93	55.0	88	54.0	0.849
Age, mean (SD), y	24.2 (5.5)		24.8 (6.7)		0.412	26.3 (6.9)		26.8 (7.5)		0.534
SES					0.691					0.889
A	36	30.0	36	26.3		37	21.9	38	23.3	
B	70	58.3	81	59.1		102	60.4	99	60.7	
C/D/E	14	11.7	20	14.6		30	17.7	26	16.0	
AUDIT score at baseline mean (SD)	12.3 (4.1)		12.8 (4.4)		0.328	3.8 (2.2)		3.6 (2.2)		0.341

Table 2 (cont.**):** Unavailable for follow-up analysis according to group and AUDIT score at baseline.

	High Risk					Low Risk				
	Intervention		Control			Intervention		Control		
	N	%	N	%	p	N	%	N	%	p
Missing at 3 and 6 mo	103	46.0	127	52.7	0.148	141	48.4	148	49.2	0.862
Men	66	64.1	89	70.1	0.334	90	63.8	78	52.7	0.055
Age, mean (SD), y	24.4 (5.9)		24.9 (6.9)		0.575	26.4 (6.6)		27.6 (8.2)		0.154
SES					0.934					0.058
A	29	28.2	33	26.0		33	23.4	37	25.0	
B	59	57.3	75	59.1		76	53.9	93	62.8	
C/D/E	15	14.5	19	14.9		32	22.7	18	12.2	
AUDIT score at baseline mean (SD)	12.7 (3.8)		12.9 (4.3)		0.718	3.8 (2.3)		3.5 (2.2)		0.282
Missing at 6 and 12 mo	101	45.1	116	48.1	0.511	151	51.9	136	45.2	0.103
Men	66	65.3	76	65.5	0.979	87	57.6	71	52.2	0.358
Age, mean (SD), y	24.2 (5.6)		24.9 (6.9)		0.463	25.8 (6.5)		27.3 (7.8)		0.097
SES					0.644					0.678
A	30	29.7	30	25.9		31	20.5	31	22.8	
B	60	59.4	69	59.5		91	60.3	84	61.8	
C/D/E	11	10.9	17	14.6		29	19.2	21	15.4	
AUDIT score at baseline mean (SD)	12.2 (3.9)		12.7 (4.4)		0.343	3.9 (2.2)		3.5 (2.3)		0.196
Missing at all time points	80	35.7	96	39.8	0.360	119	40.9	111	36.9	0.316
Men	55	68.7	66	68.7	> 0.999	74	62.2	57	51.3	0.097
Age, mean (SD), y	24.5 (5.5)		24.8 (7.1)		0.760	25.8 (6.2)		27.7 (8.1)		0.055
SES					0.832					0.426
A	22	27.5	23	24.0		25	21.0	25	22.5	
B	48	60.0	59	61.4		69	58.0	70	63.1	
C/D/E	10	12.5	14	14.6		25	21.0	16	14.4	
AUDIT score at baseline mean (SD)	12.2 (3.7)		12.9 (4.6)		0.276	3.8 (2.2)		3.4 (2.2)		0.129

Abbreviations: SD: standard deviation. AUDIT, Alcohol Use Disorders Identification Test.

Table 3 presents the treatment effects for the outcomes in each of the assessment time-points for each AUDIT-stratified group according to treatment group. There were no significant effects of intervention for either BD in the past month and the AUDIT score in either of the two risk groups for AUDIT (p>0.05), with the exception of the AUDIT score at 6 months for the "high risk" group (OR=0.87; 95%CI: 0.76;1.00, p=0.050).

Table 3: Effects of treatment (Intervention vs Control) based on random effects model – crude and adjusted analyses.

	BD last month	OR[a]$_c$	95% CI	OR[b]$_{adj}$	95% CI	p
High risk	Baseline	0.81	0.53 – 1.23	0.80	0.52 – 1.21	0.282
	3 months	0.83	0.48 – 1.44	0.83	0.48 – 1.45	0.516
	6 months	0.82	0.44 – 1.54	0.82	0.44 – 1.55	0.545
	12 months	1.14	0.66 – 1.97	1.15	0.66 – 2.00	0.621
	AUDIT score	**IRR[c]$_c$**	**95% CI**	**IRR[d]$_{adj}$**	**95% CI**	**p**
	Baseline	0.97	0.91 – 1.03	0.97	0.92 – 1.04	0.430
	3 months	0.95	0.83 – 1.08	0.95	0.84 – 1.08	0.467
	6 months	0.86	0.75 – 0.99	0.87	0.76 – 1.00	0.050
	12 months	0.97	0.85 – 1.11	0.98	0.85 – 1.11	0.726

	BD last month	OR[a]$_c$	95% CI	OR[b]$_{adj}$	95% CI	p
Low risk	Baseline	1.14	0.79 – 1.65	1.13	0.78 – 1.64	0.508
	3 months	1.11	0.65 – 1.90	1.11	0.65 – 1.90	0.704
	6 months	1.15	0.61 – 2.18	1.15	0.60 – 2.20	0.669
	12 months	1.38	0.80 – 2.41	1.38	0.79 – 2.42	0.256
	AUDIT score	**IRR[c]$_c$**	**95% CI**	**IRR[d]$_{adj}$**	**95% CI**	**p**
	Baseline	1.08	0.98 – 1.20	1.08	0.98 – 1.19	0.125
	3 months	1.13	0.95 – 1.34	1.15	0.97 – 1.36	0.115
	6 months	1.12	0.91 – 1.37	1.16	0.95 – 1.42	0.148
	12 months	1.10	0.90 – 1.34	1.11	0.91 – 1.34	0.302

a. Generalized linear mixed models with Stata xtlogit procedure adjusted for group, time and group x time interaction effects.
b. Generalized linear mixed models with Stata xtlogit procedure adjusted for group, time, group x time interaction, sex, age group and SES.
c. Generalized linear mixed models with Stata xtnbreg procedure adjusted for group, time and group x time interaction effects.
d. Generalized linear mixed models with Stata xtnbreg procedure adjusted for group, time, group x time interaction, sex, age group and SES.

When observing the changes in time according to the treatment group, opposite effects were observed according to risk group in which the subject was at baseline (**Table 4**). For the intervention group of the "high risk" stratum, a direct comparison between the baseline and 12 months shows a 40% decrease in BD in the past month (OR=0.60; 95%CI: 0.38;0.95). Regarding the AUDIT score, this decrease was observed at the three time-points, with the lowest IRR being observed at 12 months (IRR=0.87; 95%CI: 0.79;0.95). A similar situation was observed for the control group, where, at 12 months, there were significant drops in both BD in the past month (OR=0.42; 95%CI: 0.26;0.66) and the AUDIT score (IRR=0.87; 95%CI: 0.79;0.95). In the "low risk" group, the opposite was observed for the AUDIT score, i.e., in both the control and intervention groups, there were statistically significant increases in the AUDIT score, with the greatest increases being observed at 6 months in both groups (control: IRR=1.27; 95%CI: 1.11;1.47 and intervention: IRR=1.37; 95%CI: 1.20;1.57). However, this stratum showed no effect on BD in the past month for any of the time-points or treatment groups. Additionally, **Figure 2** shows the effect of time for each stratum according to treatment group. The point estimates for the AUDIT score and BD in the past month in both strata, at the four time-points and in the two intervention groups, are presented in the **Table S1 (File Supplementary).**

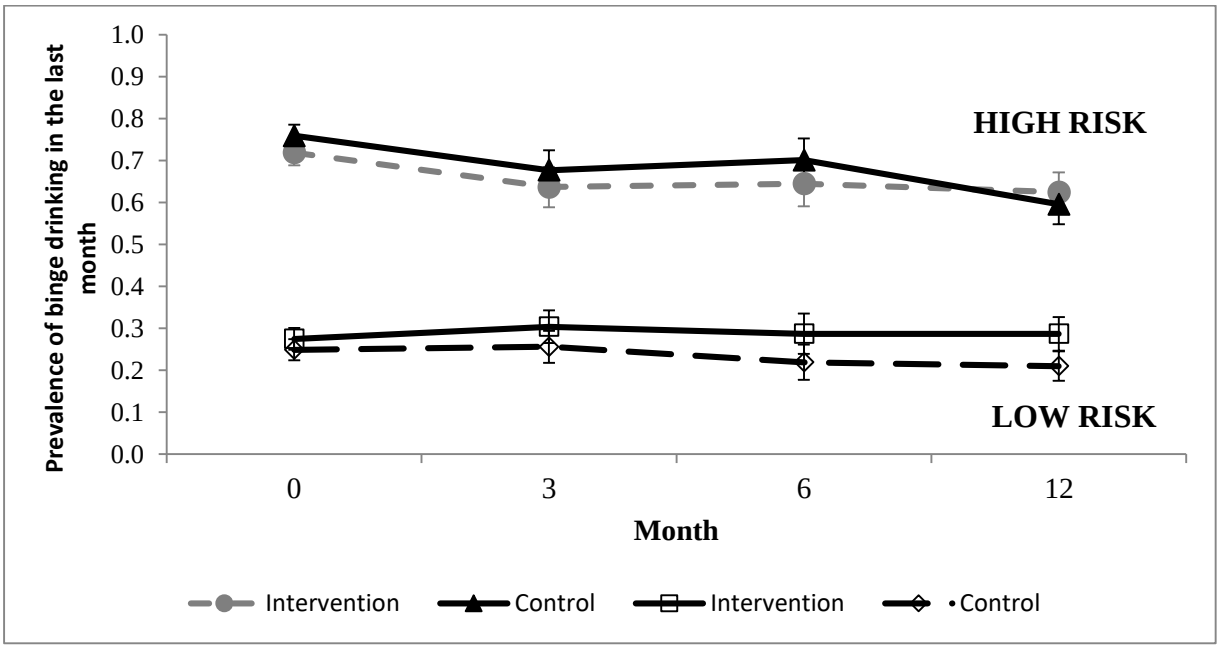
Table 4: Effects of time relative to the baseline based on random effects model – crude and adjusted analyses.

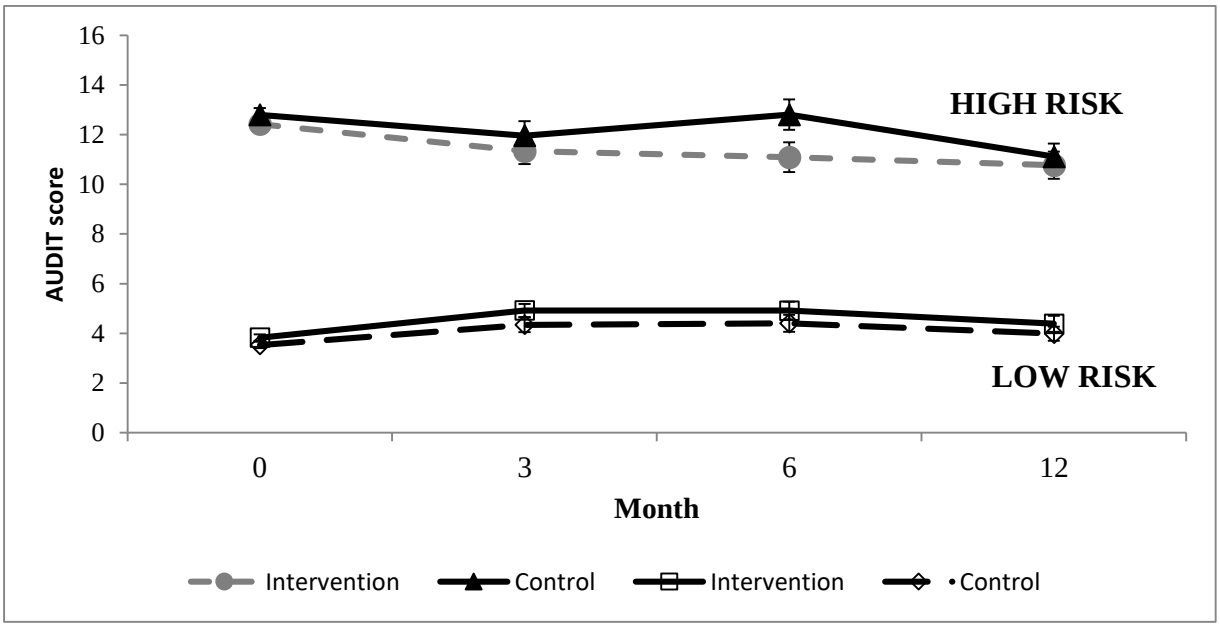
		Time effect – Intervention Group						Time Effect – Control Group					
		Crude			Adjusted			Crude			Adjusted		
		OR[a]$_c$	95% CI	**p**	**OR[b]$_{adj}$**	95% CI	**P**	**OR[a]$_c$**	95% CI	**p**	**OR[b]$_{adj}$**	95% CI	**p**
High risk	**BD last month**												
	3 x 0 month	0.66	0.43 – 1.02	0.059	0.65	0.42 – 1.01	0.057	0.64	0.43 – 0.95	0.029	0.62	0.42 – 0.93	0.021
	6 x 0 month	0.71	0.44 – 1.15	0.164	0.71	0.43 – 1.15	0.164	0.70	0.43 – 1.12	0.138	0.68	0.42 – 1.10	0.119
	12 x 0 month	0.60	0.38 – 0.94	0.028	0.60	0.38 – 0.95	0.030	0.43	0.27 – 0.68	< 0.001	0.42	0.26 – 0.66	< 0.001
	AUDIT score												
	3 x 0 month	0.91	0.84 – 0.98	0.018	0.91	0.85 – 0.99	0.023	0.93	0.85 – 1.03	0.156	0.94	0.85 – 1.03	0.178
	6 x 0 month	0.89	0.81 – 0.98	0.019	0.89	0.81 – 0.98	0.020	1.00	0.91 – 1.10	0.989	1.00	0.92 – 1.10	0.943
	12 x 0 month	0.87	0.79 – 0.95	0.003	0.87	0.79 – 0.95	0.003	0.87	0.79 – 0.95	0.002	0.87	0.79 – 0.95	0.002
		OR[a]$_c$	95% CI	**p**	**OR[b]$_{adj}$**	95% CI	**P**	**OR[a]$_c$**	95% CI	**p**	**OR[b]$_{adj}$**	95% CI	**p**
Low risk	**BD last month**												
	3 x 0 month	0.97	0.65 – 1.46	0.888	0.97	0.64 – 1.47	0.895	0.99	0.66 – 1.50	0.979	0.99	0.65 – 1.50	0.974
	6 x 0 month	0.80	0.51 – 1.28	0.357	0.81	0.51 – 1.30	0.385	0.80	0.50 – 1.26	0.340	0.80	0.50 – 1.27	0.340
	12 x 0 month	0.96	0.63 – 1.47	0.851	0.97	0.63 – 1.49	0.884	0.79	0.52 – 1.21	0.283	0.79	0.51 – 1.22	0.293
	AUDIT score												
	3 x 0 month	1.28	1.16 – 1.42	< 0.001	1.34	1.21 – 1.48	< 0.001	1.23	1.09 – 1.38	0.001	1.26	1.11 – 1.42	< 0.001
	6 x 0 month	1.28	1.12 – 1.47	< 0.001	1.37	1.20 – 1.57	< 0.001	1.25	1.08 – 1.44	0.002	1.27	1.11 – 1.47	0.001
	12 x 0 month	1.14	1.00 – 1.31	0.045	1.20	1.05 – 1.37	0.009	1.13	0.99 – 1.29	0.076	1.17	1.02 – 1.34	0.026

a. Generalized linear mixed models with Stata xtlogit procedure adjusted for group, time and group x time interaction effects.
b. Generalized linear mixed models with Stata xtlogit procedure adjusted for group, time, group x time interaction, sex, age group and SES.
c. Generalized linear mixed models with Stata xtnbreg procedure adjusted for group, time and group x time interaction effects.
d. Generalized linear mixed models with Stata xtnbreg procedure adjusted for group, time, group x time interaction, sex, age group and SES.

Finally, to explain the initial losses among the potential 2422 patrons recruited at the entrance of the nightclubs of São Paulo, women and higher-educated individuals were more likely to access the web on the day following the portal survey and to participate in the web-based RCT. There were no differences with respect to age, education level, socioeconomic status (SES) and marital status (**Table S2; Supplementary File**).

Figure 2: Prevalence of past month BD and AUDIT score over time according to the baseline AUDIT score and group.





DISCUSSION

This study is innovative because it used an RCT to evaluate the effectiveness of web-based personalized feedback after employing web-based alcohol use screening through AUDIT among nightclub patrons of the Southern hemisphere's largest city. In the "high risk" group, there were significant reductions in both the AUDIT score and the prevalence of BD over time. In addition, there was an effect of intervention at 6 months, i.e., there was an estimated reduction of 13% in favor of the intervention group in the AUDIT score. In the "low risk" group, both control and intervention patrons increased their AUDIT scores, and there was no difference in the prevalence of BD compared to that at baseline. The results for the two risk groups suggest an assessment effect on alcohol use.

Until now, to our knowledge, there have been no other published studies that assess the effectiveness of online interventions among nightclub patrons. However, studies conducted with college students in groups with high levels of risk drinking (Kypri et al., 2002) have suggested that this population would be less likely to engage in discussions about their alcohol consumption with health professionals but that a web-based assessment tool and personalized feedback tend to be well accepted (Kypri et al., 2003). Given that the nightclub patrons are a population of young adults and composed of mostly college students, the extrapolation to this population is plausible since alcohol abuse is common at this type of location (Duff, 2008); thus, interventions for this group are necessary and urgent (Calafat et al., 2011). Half of the portal survey participants accessed the online questionnaire on the following day and were willing to participate in the RCT. These data show that the web-based intervention does not reach a significant portion of nightclub patrons, with the largest proportion of losses identified occurring among men and less-educated individuals, suggesting the non-universality of the intervention.

Another point that differentiates our study is the fact that even the group classified as "low risk" also participated in the intervention. The justification for this inclusion was that if the intervention proved to be effective, it would be interesting to make it available for all patrons; therefore, an assessment of its effect on individuals with low-risk drinking patterns is required. Misconceptions in the interpretation of social norms do not occur only among those who have risk behaviors, and social normative feedback could be a tool for correcting these misconceptions in the population (Bewick et al., 2010).

The effectiveness of web-based interventions aimed at decreasing consumption and/or preventing the abuse of alcohol points to controversial results of the screening and online intervention methodologies, as suggested in the systematic review conducted by Bewick et al. (2008a). More studies are needed to understand the relationship between different levels of alcohol consumption and

intervention effectiveness, since Westrup et al. (2003) suggest that this type of intervention can be more effective for high-risk participants, while the study by Lieberman (2003) suggests a lower utility among alcohol abusers, making clear the need for more effect assessments through stratification by risk profile.

In this "high risk" group, the patrons benefitted from participation in the study, which is agreement with the findings of other international studies with college students where the inclusion criterion was an AUDIT score greater than or equal to 8 (Kypri et al., 2009; Bewick et al., 2008b). However, the intervention effect observed in the present study was lower than that found in other work with college students, despite using the same screening criteria and a similar intervention (Kypri et al., 2004; Kypri et al., 2008 and Kypri et al., 2011). It is believed that the difference between our study and those other studies involves the population evaluated, since the effect was lower in the study that assessed the general Brazilian population.

A possible iatrogenic effect of the assessment was found in the "low risk" group, as there were significant increases in the AUDIT score over time in both the control and intervention groups in this stratum of nightclub patrons. The assessment effect occurs through the change in behavior profiles only because a given individual was included in the study, regardless of which group he or she was allocated to and regardless of whether he or she received the intervention. This effect is not new, although it is unusual, and has been previously described by McCambridge and Kypri (2011), who emphasize that answering questions about alcohol consumption patterns in screenings seems to change the respondents' consumption patterns and the subsequent measurements. This effect leads to bias because completing the questionnaire, which is also completed by the control group, can be considered a component of the intervention and can dilute the effect of the intervention.

When analyzing the behavior of the AUDIT scores over time for the "high risk" and "low risk" groups, one can see an opposite effect, i.e., a decreasing trend in the former group and an increasing trend in the latter group. This phenomenon may reflect a statistical effect known as "regression to the mean", which presupposes that when the subjects are evaluated in extreme moments of their behavior, the tendency of the groups is to return to the mean, i.e., over time, they will start reporting more realistic instead of extreme consumption levels. According to McCambridge et al. (2014), the phenomenon of regression to the mean affects part of the observed effect, especially in the control group, of all brief alcohol intervention trials. Furthermore, the change in alcohol consumption over time can increase with increasing cut-off point. In our case, the cut-off effect did not occur, since all drinkers who accessed the web were included.

This study has limitations, with the main limitation being the high rate of attrition over the 12-month period. Another limitation was the inability to compare the results of this study with others that assessed online interventions in nightclub patrons due to the unprecedented nature of this work and the difficulty some nightclub patrons had accessing the internet, thus limiting the scope of the RCT.

Finally, it was concluded that online interventions can be an option for the reduction of abusive behaviors regarding alcohol consumption in the nightclub patron population. Although the adherence to the intervention was average, there was an effect in AUDIT score reduction in the intervention group when compared to the control group among "high risk" subjects. No intervention effects were observed for the "low risk" group, but there was an iatrogenic effect of time, i.e., the AUDIT scores increased in both the control and intervention groups.

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Table S1: Descriptive statistics according risk group by time for binge drinking AUDIT score and group.

	High Risk				Low Risk			
	Intervention		**Control**		**Intervention**		**Control**	
Binge drinking last month	n/N	%	n/N	%	n/N	%	n/N	%
At baseline	161/224	71.9	183/241	75.9	80/291	27.5	75/301	24.9
3 months	65/102	63.7	65/96	67.7	42/138	30.4	33/129	25.6
6 months	51/79	64.6	54/77	70.1	25/87	28.7	21/96	21.9
12 months	65/104	62.5	62/104	59.6	35/122	28.7	29/138	21.0
	Intervention		**Control**		**Intervention**		**Control**	
AUDIT score	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
At baseline	12.4 (4.0)		12.8 (4.2)		3.8 (2.2)		3.5 (2.2)	
3 months	11.3 (5.2)		11.9 (5.8)		4.9 (3.1)		4.4 (3.4)	
6 months	11.1 (5.3)		12.8 (5.3)		4.9 (3.1)		4.4 (3.3)	
12 months	10.8 (5.5)		11.1 (5.3)		4.4 (3.5)		4.0 (3.3)	

Table S2: Group comparation (Intervention vs Control) according mixture model – crude and adjusted analysis.

	BD last month	OR[a]$_c$	95% CI	OR[b]$_{adj}$	95% CI	p
High Risk	Baseline	0.81	0.53 – 1.23	0.80	0.52 – 1.21	0.282
	3 months	0.83	0.48 – 1.44	0.83	0.48 – 1.45	0.516
	6 months	0.82	0.44 – 1.54	0.82	0.44 – 1.55	0.545
	12 months	1.14	0.66 – 1.97	1.15	0.66 – 2.00	0.621
	AUDIT score	**OR[c]$_c$**	**95% CI**	**OR[d]$_{adj}$**	**95% CI**	**p**
	Baseline	0.97	0.91 – 1.03	0.97	0.92 – 1.04	0.430
	3 months	0.95	0.83 – 1.08	0.95	0.84 – 1.08	0.467
	6 months	0.86	0.75 – 0.99	0.87	0.76 – 1.00	0.050
	12 months	0.97	0.85 – 1.11	0.98	0.85 – 1.11	0.726

	BD last month	OR[a]$_c$	95% CI	OR[b]$_{adj}$	95% CI	p
Low Risk	Baseline	1.14	0.79 – 1.65	1.13	0.78 – 1.64	0.508
	3 months	1.11	0.65 – 1.90	1.11	0.65 – 1.90	0.704
	6 months	1.15	0.61 – 2.18	1.15	0.60 – 2.20	0.669
	12 months	1.38	0.80 – 2.41	1.38	0.79 – 2.42	0.256
	AUDIT score	**OR[c]$_c$**	**95% CI**	**OR[d]$_{adj}$**	**95% CI**	**p**
	Baseline	1.08	0.98 – 1.20	1.08	0.98 – 1.19	0.125
	3 months	1.13	0.95 – 1.34	1.15	0.97 – 1.36	0.115
	6 months	1.12	0.91 – 1.37	1.16	0.95 – 1.42	0.148
	12 months	1.10	0.90 – 1.34	1.11	0.91 – 1.34	0.302

a. Generalized linear mixed models with Stata xtlogit procedure adjusted for group, time and group x time interaction effects.
b. Generalized linear mixed models with Stata xtlogit procedure adjusted for group, time, group x time interaction, sexo, faixa etária e SES.
c. Generalized linear mixed models with Stata xtnbreg procedure adjusted for group, time and group x time interaction effects.
d. Generalized linear mixed models with Stata xtnbreg procedure adjusted for group, time, group x time interaction, sexo, faixa etária e SES

CONSIDERAÇÕES FINAIS

7. CONSIDERAÇÕES FINAIS

O reconhecimento crescente de que os efeitos negativos do consumo de álcool e outras drogas estão intimamente relacionados com o ambiente no qual são consumidos, ao invés de simplesmente resultantes das propriedades tóxicas destas substâncias, tem reforçado a importância do estudo dos ambientes de lazer, nos quais este uso ocorre. Observando as inúmeras evidências científicas, nota-se que o consumo de álcool e outras drogas por jovens e os riscos associados ao consumo, adquirem grande parte de sua lógica e coerência no contexto recreativo noturno.

Desta forma, o primeiro passo para o direcionamento de ações destinadas à proteção de frequentadores de baladas é a compreensão do contexto onde esses riscos ocorrem, o qual foi um dos objetivos do projeto “Balada com Ciência” e implicitamente deste trabalho.

Os resultados do presente estudo evidenciaram algumas características importantes das baladas da cidade de São Paulo. O primeiro achado deste trabalho é que, embora o estudo aborda uma amostra probabilística de frequentadores de baladas da cidade de São Paulo, destaca-se o quanto o beber em padrão “*binge*” está presente entre estes sujeitos. Isso ficou bem evidenciado quando se avaliou as características dos frequentadores de baladas com relação ao poliuso de drogas através da construção de classes latentes, onde beber em padrão “*binge drinking*” apresentou probabilidades não desprezíveis nas três classes construídas. Ou seja, mesmo a classe designada de não poliuso de drogas, mostrou que 50% dos frequentadores de baladas entrevistados estavam envolvidos em “*binge drinking*” no ano anterior ao estudo.

Outro achado deste trabalho foi que o ambiente das baladas desempenha um importante papel no comportamento dos seus frequentadores quer seja para o poliuso de drogas como para os comportamentos de risco associados ao consumo de álcool. Dessa forma, pode-se dizer que um sujeito ao escolher uma balada para o seu momento de lazer está condicionando-se a ter uma probabilidade diferenciada de pertencer a classes de poliuso de drogas e de comportamentos de risco associados ao consumo de álcool. Vale lembrar que, neste estudo as baladas foram classificadas de acordo com o estilo musical predominante do dia de coleta de dados, e pode-se observar que indivíduos entrevistados em baladas classificadas como eletrônicas apresentaram maior probabilidade de pertencer tanto à classe de “poliuso severo” de drogas como à classe de “alto risco” para os comportamentos de risco associados ao consumo de álcool.

Outro fato que os achados deste trabalho apontam é para a alta prevalência entre os frequentadores de balada para a prática da “direção perigosa” (dirigir sob efeito do álcool ou pegar carona com alguém embriagado ou envolver-se em acidente automobilístico devido a intoxicação alcoólica). Ou seja, os resultados deste trabalho apontam para o alto consumo de álcool entre os frequentadores de baladas e, além disso, o quanto que estes frequentadores não se mostram intimidados perante a legislação de trânsito vigente no país conhecida como “Lei Seca” (Lei No. 12.760/2012).

Com base nestes achados ficou clara a necessidade de intervenções que visem a redução do uso de álcool e, por conseguinte das suas consequências entre os frequentadores das baladas de São Paulo.

Dessa forma, este estudo mostra os resultados obtidos de um ensaio controlado randomizado em que foi proposta uma intervenção via internet entre

frequentadores de baladas na cidade de São Paulo. E um dos primeiros resultados evidenciados por este trabalho é que esta intervenção não atinge uma porção significante dos seus frequentadores, sugerindo que ela não é universal. Outro achado deste estudo diz respeito à eficácia da intervenção onde se evidenciou que, entre aqueles frequentadores com classificação (via AUDIT) no momento inicial do ensaio como “alto risco” houve redução significativa tanto na pontuação do AUDIT como na prevalência de “*binge drinking*” na comparação com os valores basais ao longo do tempo. Já o grupo com classificação “baixo risco” no momento inicial do ensaio apresentou aumento na pontuação do AUDIT ao longo do tempo e nenhuma diferença com relação à prevalência de “*binge drinking*” quando comparados aos valores apresentados no momento inicial do ensaio.

Com base nesses achados pode-se evidenciar que, frequentadores de balada com pontuação de AUDIT classificados como “baixo risco” não se beneficiaram da intervenção, mostrando que este tipo de intervenção não se aplica a indivíduos com escores de AUDIT de “baixo risco”, o que indica a não universalidade deste tipo de intervenção.

Já entre aqueles frequentadores de balada classificados como de “alto risco” apesar de apresentarem redução significativa ao longo do tempo tanto em seus escores de AUDIT como na prevalência de “*binge drinking*”, os resultados obtidos neste trabalho foram menores do que os obtidos em estudos que utilizaram o mesmo critério de rastreamento e intervenção similar em uma população de estudantes universitários. Tal achado remete a reflexão de que apesar da população deste estudo ser em sua maioria de jovens como a de universitários, ela apresenta particularidades e, dessa forma apresenta resultados distintos quando submetidos à mesma intervenção.

Outro fato evidenciado através deste trabalho foi que a intervenção produziu um efeito de avaliação do consumo de álcool em ambos os grupos de risco, ou seja, a intervenção levou estes frequentadores de balada refletirem a respeito do uso do álcool, o que pode ser encarado como positivo.

Um fato que deve ser levado em conta é de que o lazer noturno costuma ser visto de forma muito positiva pelos envolvidos, o que faz com que as pessoas tendam a ignorar os problemas relacionados a estes ambientes. Os jovens, principais atores neste contexto, tendem a enxergar medidas, quer seja de fiscalização sob o consumo de álcool, ou quer seja da redução de danos como uma forma de controle sobre suas escolhas pessoais, sendo necessário levar em consideração o aspecto simbólico que este contexto representa para esta população.

A partir dos dados obtidos neste estudo e investigações do que já foi testado em cenário internacional, algumas recomendações preventivas visando a redução do risco nas baladas são propostas, sendo elas:

1) Controle sobre a venda do álcool em forma de legislação:

- ✓ Venda responsável (não vender para sujeitos já intoxicados);
- ✓ Aumentar taxação geral sobre a venda de bebidas alcoólicas e aumentar custo específico das bebidas alcoólicas após um determinado horário;

2) Capacitação da equipe:

- ✓ Para venda responsável de bebida alcoólica;
- ✓ Para atuar e reconhecer pessoas intoxicadas por álcool e outras drogas.

3) Para frequentadores:

- ✓ Incentivar o uso de transportes públicos, ex: parceria com cooperativas de taxi e similares;

- ✓ Ofertar informações sobre redução de danos, especialmente para reduzir episódios de intoxicação alcoólica.

Uma outra recomendação que fica clara com os achados deste estudo é a necessidade de uma maior fiscalização com relação à própria lei de trânsito existente da prática de beber e dirigir. Uma ideia seria criar talvez um maior número de pontos de controle, principalmente nas proximidades onde o lazer noturno ocorre e no período em que eles acontecem.

No entanto, todas as propostas sugeridas acima dependem de colaboração dos diversos atores envolvidos e a complexidade da execução é notável.

Um fato que remete a reflexão de todos é com relação ao desenvolvimento de técnicas criativas que mobilizem os frequentadores de baladas a pensaram sobre seus hábitos nestes estabelecimentos, envolvê-los neste processo parece um bom modelo. Se levarmos em conta que a recusa para participar do projeto foi baixa, mesmo com a coleta de medidas biológicas que poderia ser intimidadora, nota-se interesse por parte destes sujeitos para colaborar para a redução dos comportamentos de risco.

Por fim, é importante destacar que este estudo apresenta algumas limitações. Por se tratar de um estudo que envolve alguns comportamentos ilícitos e que ocorreram no ano anterior do estudo, estes podem ter sido subrelatados durante as entrevistas. Uma outra limitação diz respeito à alta taxa de atrito observada no estudo referente ao teste da intervenção no período de um ano.

Entretanto este trabalho apresenta pontos fortes como o fato de ser o primeiro estudo brasileiro que agrupa frequentadores de baladas da maior cidade do país de acordo com poliuso de drogas e comportamentos de risco associados ao uso de álcool, além de propor e testar uma intervenção entre estes frequentadores. Por fim,

destaca-se o alto índice de aceite por parte dos baladeiros em participar (80%) do inquérito de portal, o que aumenta a validade externa do estudo.

Deseja-se com este estudo elucidar gestores, pesquisadores e sociedade civil sobre os comportamentos de risco em baladas da cidade de São Paulo. A partir dos dados aqui apresentados, espera-se que ações que visem a redução de riscos e danos nestes estabelecimentos sejam discutidas pelos múltiplos atores. Porém, sem amparo da mudança da legislação referente à venda de bebidas alcoólicas, pouco será conquistado.

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ANEXOS

ANEXO 1

Questionário de entrada (aceite e recusa) – registrado em tablet Samsung Galaxy

Parte A - Questionário de ACEITE a ser aplicado na ENTRADA da balada:

Entrevistador:
Número da balada:
Código do entrevistado:
Email:
Celular:

1) Sexo:
   a) Masculino
   b) Feminino

2) Idade:
3) Peso:
4) Altura:

5) Você trabalha?
   a) Trabalho registrado
   b) Trabalho sem registro (sem carteira assinada)
   c) Desempregado e procurando emprego
   d) Desempregado e não procurando emprego
   e) Estudando apenas
   f) Aposentado

6) Com quem mora?
   a) Família (pais/irmãos)
   b) Marido/mulher/namorado (a)
   c) Amigos
   d) Sozinho
   e) República
   f) Outra

7) Estado civil:
   a) Solteiro com namorada
   b) Solteiro sem namorada
   c) Casado/união estável
   d) Separado/divorciado
   e) Viúvo

8) Qual a sua etnia?
   a) Branco
   b) Negro
   c) Pardo/mulato
   d) Asiático
   e) Indígena

9) Qual o principal motivo que o levou a escolher esta balada?

a) Não foi decisão minha
b) Tipo de música
c) Preço
d) Ambiente
e) Staff/ empregados/ funcionários
f) Características dos frequentadores
g) Localização
h) Outros

10) Qual a sua religião?
a) Não tem religião
b) Católico
c) Evangélico/ protestante
d) Espírita
e) Outras

11) Se tem religião, é praticante?
a) Sim
b) Não

12) Qual sua escolaridade?
a) Nunca estudou
b) Ensino fundamental incompleto
c) Ensino fundamental completo
d) Ensino médio completo
e) Universitário completo
f) Pós-graduação

13) Está estudando no momento?
a) Sim
b) Não

14) Nos últimos 12 meses, você tomou 5 doses (para homens e 4 doses para mulheres) ou mais de bebida alcoólica num período de cerca de 2 horas? – ***mostrar cartão ilustrativo de doses***
a) Não
b) Sim

15) Nos últimos 30 dias, você tomou 5 doses (para homens e 4 para mulheres) ou mais de bebida alcoólica num período de cerca de 2 horas? - ***mostrar cartão ilustrativo de doses***
a) Não
b) Sim

Se sim, em quantos dias do mês isto correu? ☐

Se sim, onde isso ocorreu principalmente:
a) Balada, bar ou casa noturna.
b) Casa (de amigo ou sua)
c) Restaurante
d) Outros: ☐

16) Nos últimos 30 dias, quantas vezes você freqüentou bares/baladas? ☐

17) Destas vezes, quantas vezes você praticou esquenta pré-balada? ☐

18) Você ingeriu qualquer tipo de bebida alcoólica ANTES de chegar à balada?
   a) Não
   b) Sim

SE NÃO FEZ ESQUENTA, PULAR PARA QUESTÃO 27

19) Se sim, a que horas você começou a beber hoje? [ ]

20) Você poderia me dizer qual o tipo de bebida que você ingeriu antes de chegar à balada? (+ de 1)
   a) Cerveja
   b) Vinho
   c) Vodka
   d) Uísque
   e) Cachaça
   f) Ice
   g) Batidas ou misturas
   h) Tequila
   i) Energético
   j) Bebidas não alcoólicas (suco, água, refrigerante, isotônico)
   k) Outras

21) Quantas doses de álcool você ingeriu neste esquenta? (mostrar novamente cartão ilustrativo de doses)
   a) Cerveja: [ ]
   b) Ice: [ ]
   c) Vinho: [ ]
   d) Destilados: [ ]
   e) Energéticos: [ ]

22) Quanto embriagado você se sente?
   a) Nada embriagado
   b) Pouco embriagado
   c) Razoavelmente embriagado
   d) Muito embriagado
   e) Muitíssimo embriagado

23) Você consumiu algum alimento durante o esquenta?
   a) Não consumi alimentos
   b) Sim, petiscos
   c) Sim, uma refeição

24) Qual o PRINCIPAL motivo que o leva a praticar o esquenta?
   a) Economia de dinheiro
   b) Chegar na balada já desinibido
   c) Outro motivo principal: [ ]

25) Quanto você gastou com álcool no esquenta? [ ]

26) Onde você fez o esquenta?
   a) Na rua
   b) Casa (de amigo ou sua)
   c) Bar

d) Restaurante
e) Posto de gasolina
f) Outros: ☐

27) Em quantas das vezes que você vem para a balada você pretende ficar bêbado?
a) Nunca
b) Poucas vezes
c) Às vezes
d) Na maioria das vezes
e) Sempre

28) Hoje, que meio de condução você utilizou para vir à balada?
a) Carona de amigo ou conhecido
b) Dirigindo carro
c) Dirigindo moto
d) Taxi
e) Transporte público (ônibus/ metrô)
f) Outros (Quais?) ☐

29) Hoje, que tipo de condução utilizará na volta para casa?
a) Carona de amigo ou conhecido
b) Dirigindo carro
c) Dirigindo moto
d) Taxi
e) Transporte público (ônibus/ metrô)
f) Outros (Quais?) ☐

30) Qual a escolaridade do chefe da sua família:
a) Nunca estudou
b) Ensino fundamental I incompleto
c) Ensino fundamental I completo ou II incompleto
d) Fundamental II completo ou médio incompleto
e) Ensino médio completo ou superior incompleto
f) Ensino técnico completo (equivalente ao ensino médio)
g) Universitário completo

Na sua casa tem:	**Quantos?**				
	0	**1**	**2**	**3**	**4 +**
TV (em funcionamento ou em conserto)					
Videocassete ou DVD(em funcionamento ou em conserto)					
Rádio (em funcionamento ou em conserto, não vale rádio do automóvel)					
Banheiros (incluindo de empregada e lavabo com vaso sanitário)					
Carros (uso de " passeio")					
Empregados domésticos (mensalista e que trabalhe pelo menos de 2ª a 6ª)					
Geladeira (em funcionamento ou em conserto)					
Freezer (aparelho independente ou parte de geladeira duplex)					
Máquina de lavar (em funcionamento ou em conserto)					

31) **No último ano**, algum destes eventos ocorreu **durante ou logo após a balada** com você?

	Não	Sim, 1 ou + vezes	Sim, 3 ou + vezes
Dirigiu um carro ou moto sob efeito do álcool			
Se sim, houve algum acidente (batidas, atropelamento, capotar)			
Pegou carona com um motorista que havia bebido			
Se sim, houve algum acidente (batidas, atropelamento, capotar)			
Teve outros tipos de acidentes em decorrência da embriaguês			
Envolveu-se em brigas			
Alguma vez não se lembrou do que ocorreu na noite da balada			
Desmaiou em decorrência do álcool			
Teve um coma alcoólico			
Alguma vez já ficou alcoolizado e não se lembra se o sexo foi consensual			
Manteve relações sexuais com alguém sob efeito de álcool			
Não utilizou preservativo numa relação sexual sob efeito de álcool			
Teve uma relação sexual da qual se arrependeu sob efeito do álcool			

32) Da lista abaixo, quais destas drogas você já utilizou (esta questão será respondida diretamente pelo entrevistado no tablet):

	Nunca	Mais de 1 ano	Últimos 12 meses	Últimos 30 dias	Hoje
Maconha ou haxixe					
Cocaína pó					
Ecstasy					
Tabaco					
Crack					
Inalantes (lança, loló, cola, etc)					
Ketamina (ex: special K)					
Metanfetamina (ex: cristal, ice)					
Outras anfetaminas (ex: femproporex, mazindol)					
Calmantes "tarja preta" (ex: diazepam, valium, rivotril)					
Alucinógenos (cogumelos, LSD, lírio, peyote, etc)					

33) Qual a sua renda média mensal (esta questão será respondida diretamente pelo entrevistado no tablet):
   a) Até um salário mínimo (R$ 622,00)
   b) De R$ 623,00 a R$ 1.244,00
   c) De R$ 1.245,00 até R$ 2.488,00
   d) De R$ 2.489,00 até R$ 3.732,00
   e) Mais de R$ 3.732,00
   f) Não quer informar

***Estas questões serão preenchidas pelo aplicador:**

- **Medida da dosagem alcoólica via etilômetro -** ☐

O respondente estava:

- Com a fala pastosa? Sim ☐ Não ☐
- Com dificuldade para andar ou movimentos lentificados? Sim ☐ Não ☐
- Com os olhos petrificados? Sim ☐ Não ☐
- Exalava odor alcoólico? Sim ☐ Não ☐

<u>Parte B</u>: Para indivíduos que recusaram participar na ENTRADA da balada:

Entrevistador:
Número da balada:

1) Sexo:
   a) Homem
   b) Mulher

2) Idade aproximada:
   a) Menor que 18 anos
   b) Entre 18 – 25 anos
   c) Entre 26 – 35 anos

O recusante estava:

- Com a fala pastosa? Sim ☐ Não ☐
- Com dificuldade para andar ou movimentos lentificados? Sim ☐ Não ☐
- Com os olhos petrificados? Sim ☐ Não ☐
- Exalava odor alcoólico? Sim ☐ Não ☐

ANEXO 2

Questionário de saída para frequentadores de baladas (registrado em tablet Samsung Galaxy)

Parte A: Questionário de ACEITE a ser aplicado na SAÍDA da balada:

Entrevistador:
Número da balada:
Código do entrevistado:

1) Quais das bebidas abaixo, você bebeu dentro da balada?
   a) Cerveja
   b) Vinho
   c) Vodka
   d) Uísque
   e) Cachaça/Pinga
   f) Ice
   g) Batidas
   h) Bebidas não alcoólicas (suco, água, refrigerante, isotônico)
   i) Energético
   j) Outras: ☐

2) Quantas doses das bebidas abaixo, você bebeu dentro da balada? (explicar doses com cartão ilustrativo de doses)
   a) Cerveja: ☐
   b) Ice: ☐
   c) Vinho: ☐
   d) Destilados: ☐
   e) Energéticos: ☐

3) Quanto foi seu gasto total na balada? R$ ☐

4) Qual foi seu gasto com bebidas alcoólicas na balada? R$ ☐

5) Você comeu algo enquanto consumiu bebida alcoólica?
   a) Sim
   b) Não

6) Quanto embriagado você se sente?
   a) Nada embriagado
   b) Pouco embriagado
   c) Razoavelmente embriagado
   d) Muito embriagado
   e) Muitíssimo embriagado

7) Você consumiu alguma destas drogas na balada?
   a) Maconha
   b) Cocaína em pó
   c) Ecstasy

d) Tabaco
e) Crack
f) Inalantes
g) Ketamina
h) Anfetaminas
i) Alucinógenos

8) Para onde você pretende ir agora?
   a) Casa ou casa de amigos
   b) Local para comer
   c) Outro bar/balada
   d) Motel/hotel
   e) Não decidiu ainda

9) Pretende beber mais nesta noite?
   a) Sim
   b) Não

10) Você pretende manter relação sexual hoje?
   a) Sim
   b) Não

11) Se você mantiver relações, pretende usar preservativo?
   a) Sim
   b) Não

12) Você pretende dirigir agora?
   a) Sim
   b) Não

Na balada que você estava...

	Sim	**Não**
Você viu alguma briga com agressão física?		
Você viu se houve uso de drogas ilícitas (cocaína, ecstasy, etc)?		
Você viu se houve consumo de cigarros?		
Você quebrou intencionalmente objetos do estabelecimento, como copos, mesas, cadeiras, lâmpadas?		
Você se envolveu em alguma briga (agressão física)?		
Se sim, você iniciou a briga?		
Você empurrou alguém de forma bruta?		
Você bateu ou machucou alguém de alguma outra forma?		
Você beijou ou tocou alguém de maneira sexual sem permissão do outro?		
Você tentou manter relações sexuais contra a vontade do outro?		

Na balada que você estava...

	Sim		**Não**
	Por alguém conhecido	**Por alguém desconhecido**	
Alguém te incomodou (xingou, gritou com você, etc)?			
Alguém bateu em você ou te machucou de alguma outra forma?			
Alguém te beijou ou tocou de maneira sexual sem sua permissão?			
Alguém tentou manter relações sexuais com você contra sua vontade?			
Se sim, você manteve relações sexuais contra sua vontade?			

Medida da dosagem alcoólica via etilômetro - [ ]

O respondente estava:

- Com a fala pastosa? Sim ☐ Não ☐
- Com dificuldade para andar ou movimentos lentificados? Sim ☐ Não ☐
- Com os olhos petrificados? Sim ☐ Não ☐
- Exalava odor alcoólico? Sim ☐ Não ☐

<u>Parte B</u> – Para indivíduos que se recusaram a participar na SAÍDA da balada:

Entrevistador:
Número da balada:
Código do entrevistado:

1) Motivo de recusa na saída:
   a) Não está se sentindo bem
   b) Está com pressa
   c) Outros

O respondente estava:

- Com a fala pastosa? Sim ☐ Não ☐
- Com dificuldade para andar ou movimentos lentificados? Sim ☐ Não ☐
- Com os olhos petrificados? Sim ☐ Não ☐
- Exalava odor alcoólico? Sim ☐ Não ☐

ANEXO 3

Questionário de rastreamento e Intervenção do Ensaio Controlado Randomizado (via web)

Questionário pré-intervenção:

1) Gênero
   a) Feminino
   b) Masculino

2) Idade ☐

3) Peso (em quilogramas) ☐

4) Altura (em centímetros) ☐

5) No último ano, você alguma vez ingeriu bebidas alcoólicas (mesmo que apenas um gole)?
   a) Sim
   b) Não

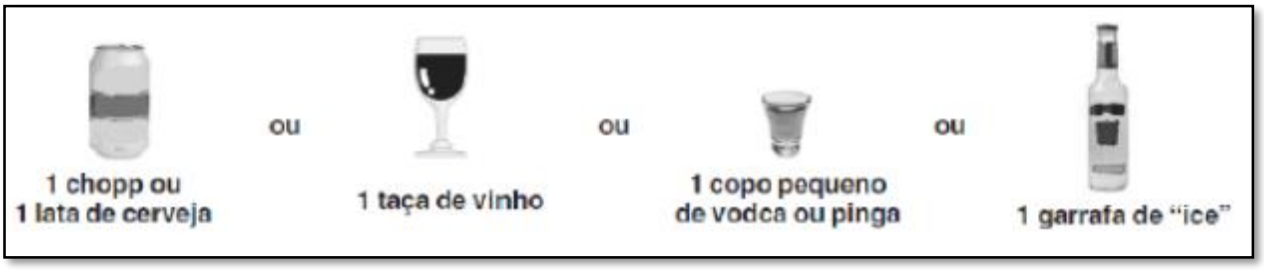
*** Caso o participante responda “não” **** Ele já será encaminhado para uma tela de “Obrigado pela sua participação!”, pois não entrará na intervenção.

6) Por favor, nos responda as seguintes perguntas sobre seu padrão de consumo de álcool:

6.1. Com que frequência você consome bebidas que contêm álcool?

a) Nunca ou quase nunca
b) Menos de uma vez por mês
c) Uma vez por mês
d) Uma vez a cada duas semanas
e) Uma vez por semana
f) Duas a três vezes por semana
g) Quatro ou mais vezes por semana

6.2. Quando você bebe, quantas bebidas contendo álcool você consome em um dia normal? ☐



6.3. Com que frequência você consome cinco ou mais doses de bebidas em uma única ocasião?

a) Nunca
b) Menos de uma vez por mês
c) Pelo menos uma vez por mês
d) Pelo menos uma vez por semana
e) Diariamente ou quase diariamente

6.4. Nos últimos 12 meses, com que frequência você percebeu que não conseguia parar de beber depois de ter começado?

a) Nunca
b) Menos de uma vez por mês
c) Pelo menos uma vez por mês
d) Pelo menos uma vez por semana
e) Diariamente ou quase diariamente

6.5. Nos últimos 12 meses, com que frequência você falhou em cumprir as tarefas que lhe são habitualmente exigidas por causa da bebida?

a) Nunca
b) Menos de uma vez por mês
c) Pelo menos uma vez por mês
d) Pelo menos uma vez por semana
e) Diariamente ou quase diariamente

6.6. Nos últimos 12 meses, com que frequência você precisou beber logo de manhã para "curar" uma ressaca?

a) Nunca
b) Menos de uma vez por mês
c) Pelo menos uma vez por mês
d) Pelo menos uma vez por semana

e) Diariamente ou quase diariamente

6.7. Nos últimos 12 meses, com que frequência você sentiu culpa ou remorso por ter bebido?

a) Nunca
b) Menos de uma vez por mês
c) Pelo menos uma vez por mês
d) Pelo menos uma vez por semana
e) Diariamente ou quase diariamente

6.8. Nos últimos 12 meses, com que frequência você foi incapaz de se lembrar do que aconteceu na noite anterior por beber demais?

a) Nunca
b) Menos de uma vez por mês
c) Pelo menos uma vez por mês
d) Pelo menos uma vez por semana
e) Diariamente ou quase diariamente

6.9. Alguma vez você ficou ferido ou alguém ficou ferido como resultado do seu consumo de álcool?

a) Não
b) Sim, mas não nos últimos 12 meses
c) Sim, aconteceu nos últimos 12 meses

6.10. Alguma vez um familiar, amigo, médico ou profissional de saúde manifestou preocupação pelo seu consumo de álcool ou sugeriu que você diminuísse seu consumo?

a) Não
b) Sim, mas não nos últimos 12 meses
c) Sim, aconteceu nos últimos 12 meses

7) Seu consumo recente de álcool:

7.1. Nas últimas quatro semanas, qual foi a maior quantidade de doses padrões de álcool que você consumiu em uma única ocasião? ☐

7.2. Em quantas horas você consumiu essa quantidade de bebida?

7.3. Em uma semana típica, quanto de dinheiro você gasta com o consumo de álcool?

a) Até R$ 50,00
b) De R$ 50,00 a R$ 100,00
c) D e R$ 100,00 a R$ 200,00
d) Mais de R$ 200,00

7.4. Como foi esta sua semana em relação ao seu consumo normal de álcool?

a) Menos álcool do que o usual
b) Quantidade igual ao do usual
c) Mais do que o usual

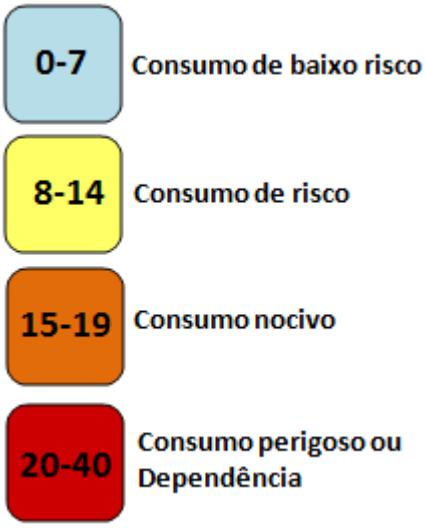
7.5. Em uma semana típica, com que frequência, em número de dias, você consome bebidas que contém álcool?

7.6. Em um dia típico que você sai para beber, qual é o tipo de bebida que você mais consome?

a) Cerveja
b) Destilados

Tela de INTERVENÇÃO:

1) Sobre o seu padrão de consumo de álcool:



<u>0-7</u> – **Consumo de baixo risco**
Parabéns! Seu padrão de beber é de baixo risco. Mantenha-se assim!

<u>8-14</u> – **Consumo de risco**
Pessoas localizadas nessa fase são chamadas de usuários de risco, pois consomem mais de duas doses padrão todos os dias ou mais de 5 doses padrão em uma única ocasião.
Não se esqueça das consequências que esse consumo de álcool pode trazer para você, para o seu corpo e para as pessoas ao seu redor. Bebendo quantidades menores aliadas a um consumo consciente você será capaz de curtir as suas saídas e, ao mesmo tempo, preservar a sua saúde!

<u>15-19</u> – **Uso Nocivo de Álcool**
Cuidado, o seu padrão de beber é perigoso. Você consome álcool em quantidade e frequência acima dos padrões de baixo risco e já apresenta problemas decorrentes do uso de álcool. Lembre-se que o seu consumo deve ser consciente e caso não reduza esse consumo nocivo você estará se expondo a diversos riscos.

<u>20-40</u> – **Uso Perigoso de Álcool** ou **Dependência**
Seu padrão de beber é extremamente perigoso. Além disso, você apresenta sintomas de dependência de álcool e precisa de ajuda especializada!
O uso abusivo do álcool não só é danoso para você, mas também para todo o seu círculo social! Não há necessidade de um consumo tão exagerado! Lembre-se o consumo de álcool deve ser feito de maneira consciente. Existem outras maneiras de curtir as suas saídas com os amigos!

2) <u>Dosagem alcoólica sanguínea:</u>

_____ Essa foi a dosagem alcóolica presente no seu sangue na ocasião em que você consumiu o seu maior número de doses padrões. O risco de você morrer em um acidente de carro com essa dosagem alcóolica é ____ vezes maior do que o de uma pessoa sóbria.

LEMBRE-SE: Beber e dirigir, essa combinação não rola! Além do elevado risco de você morrer em um acidente de carro, você pode ser parado por uma **blitz policial,** receber uma **multa de R$957,70**, ter sua carteira de motorista suspensa por 1 ano, ter seu **carro retido** e ter que ir até a delegacia! Não vale a pena arriscar tanto!

Além disso, com uma dosagem alcóolica muito alta você está mais vulnerável a fazer sexo inseguro ou, até mesmo, a sofrer abuso e ser vítima de sexo forçado! Beba de maneira consciente!

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3) Você sabe quanto você gasta com bebida alcoólica?

Você sabia que você gasta ____ com bebidas alcoólicas no ano?

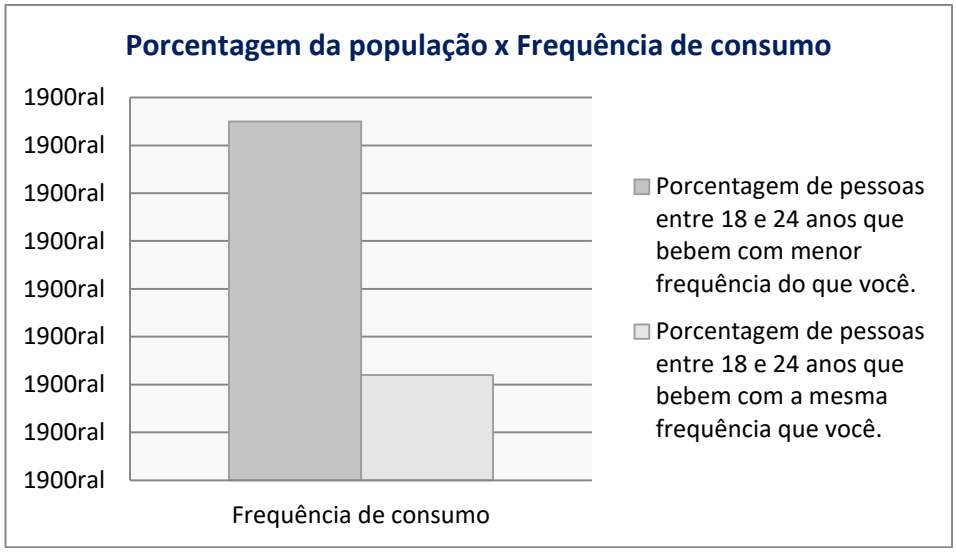
Com este valor você poderia

4) <u>Seu padrão de beber comparado com outras pessoas:</u>

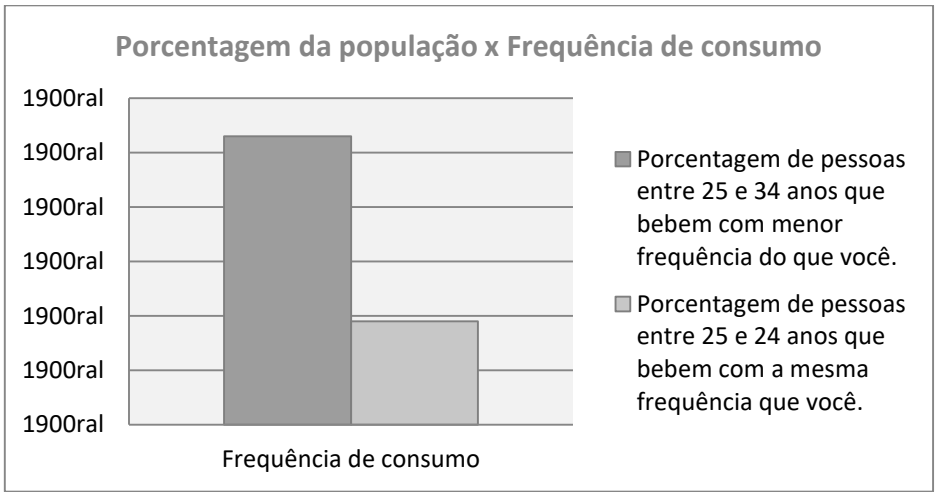
Será apresentado um gráfico ao participante, com o valor complementar a este que aparece na tabela.

Assim sendo, caso o participante responda que bebe quatro ou mais vezes por semana na pergunta 6.1 (opção G) ele verá um gráfico que mostre qual é a porcentagem de pessoas que bebem menos do que ele e a porcentagem da população que bebe igual a ele.

Frequência	18-24 anos	25-34 anos	35-44 anos	45-59 anos	60 ou mais
Todos os dias (6.1 g)	1%	4%	7%	8%	7%
1 a 4 vezes por semana (6.1 f e 6.1 e)	22%	24%	23%	16%	8%
1 a 3 vezes por mês (6.1 c e 6.1 d)	24%	19%	18%	14%	10%
Menos de 1 vez por mês (6.1 b)	13%	11%	8%	9%	8%
Menos de 1 vez por ano (6.1 a)	38%	42%	44%	54%	68%



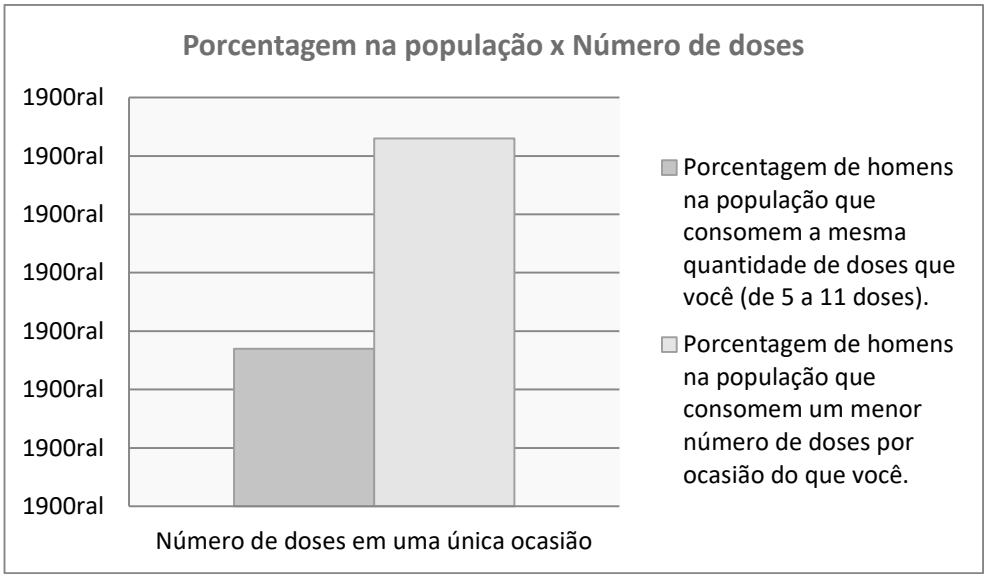
Exemplo: Homem de 23 anos com frequência de consumo de 4 vezes por semana. Considerar dados referentes à sua faixa etária (18-24 anos).



Exemplo: Mulher de 31 anos com frequência de consumo de uma a três vezes por semana. Considerar dados referentes a sua faixa etária (25-34 anos).

Usar esta tabela comparativa (O que o sujeito relata na questão 6.2 x O que a população geral faz)

Doses x Gênero	Homens	Mulheres	Total
Até 2 doses	38%	63%	48%
De 3 a 4 doses	25%	19%	22%
De 5 a 11 doses	27%	14%	22%
12 ou mais doses	11%	3%	7%



Exemplo: Homem que consome entre 5 e 11 doses por ocasião. Considerar dados referentes ao seu gênero.

5) Beba de maneira menos arriscada:

- Se for beber, é importante não chapar!
- Intercale bebidas alcoólicas com não-alcóolicas. (água, sucos e refrigerantes).
- Beba devagar.
- Dê preferência a bebidas com teor alcoólico mais baixo.
- Não associe bebidas alcoólicas com energéticos, pois eles só disfarçam a embriaguez que está presente.
- Lembre-se de comer.
- Evite bebidas alcoólicas falsificadas ou "caseiras".

LEMBRE-SE:

- Não há nível 100% seguro de consumo de álcool.
- Cada organismo reage de uma forma à mesma quantidade de álcool. Não ache que o seu corpo é o mais "forte".
- Nenhuma quantidade de álcool é segura para menores de 18 anos. Se for menor de idade, não ingira bebidas alcoólicas.
- Estudos científicos sérios mostram que mesmo 1 latinha de cerveja já compromete sua percepção ao volante! Se beber qualquer quantidade de álcool ou consumir qualquer quantidade de drogas **NÃO DIRIJA**!
- Eleja o motorista da rodada: aquele que não bebeu nem consumiu outras drogas.

Última tela (tanto para quem viu a tela de intervenção quanto para quem não viu):

Agradecemos imensamente sua participação!!!

Dentro de 3 meses você receberá um novo email nosso para que responda a estas mesmas perguntas.

ANEXO 4

Parecer do comitê de ética em pesquisa da UNIFESP-EPM

UNIVERSIDADE FEDERAL DE SÃO PAULO - UNIFESP/ HOSPITAL SÃO PAULO

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Padrões de consumo de álcool e outras drogas em "baladas": epidemiologia, etnografia e intervenção

Pesquisador: Zila van der Meer Sanchez

Área Temática:

Versão: 3

CAAE: 00624212.1.0000.5505

Instituição Proponente: Universidade Federal de São Paulo - UNIFESP/EPM

Patrocinador Principal: CONS NAC DE DESENVOLVIMENTO CIENTIFICO E TECNOLOGICO

DADOS DO PARECER

Número do Parecer: 795.276

Data da Relatoria: 17/09/2014

Apresentação do Projeto:

Emenda para inclusão de aluno com objetivo academico de Doutorado.

ALUNA: ADRIANA SANUDO.

Objetivo da Pesquisa:

Apresentação de emenda para inclusão de aluno para obtenção de título de doutorado.

Avaliação dos Riscos e Benefícios:

sem riscos associados

Comentários e Considerações sobre a Pesquisa:

Projeto de pesquisa já aprovado.

A emenda solicita a inclusão da aluna ADRIANA SANUDO com objetivo de obtenção de titulação academica a nivel de doutorado:

SUB-PROJETO DA ALUNA: ANÁLISE DE CLASSE LATENTE DE PADRÕES DE CONSUMO DE ALCOOL E OUTRAS DROGAS NA CIDADE DE SÃO PAULO.

Este sub projeto está inserido no objetivo 2 do projeto inicialmente aprovado pelo CEP.

Considerações sobre os Termos de apresentação obrigatória:

emenda apresentada de forma adequada

Endereço: Rua Botucatu, 572 1º Andar Conj. 14
Bairro: VILA CLEMENTINO **CEP:** 04.023-061
UF: SP **Município:** SAO PAULO
Telefone: (11)5539-7162 **Fax:** (11)5571-1062 **E-mail:** cepunifesp@unifesp.br

Continuação do Parecer: 795.276

Recomendações:

sem recomendações

Conclusões ou Pendências e Lista de Inadequações:

Sem pendencias adicionais

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

Considerações Finais a critério do CEP:

O CEP informa que a partir desta data de aprovação, é necessário o envio de relatórios semestrais (no caso de estudos pertencentes à área temática especial) e anuais (em todas as outras situações). É também obrigatória, a apresentação do relatório final, quando do término do estudo.

SAO PAULO, 17 de Setembro de 2014

Assinado por:
José Osmar Medina Pestana
(Coordenador)