UNIVERSIDADE FEDERAL DA BAHIA
FACULDADE DE MEDICINA DA BAHIA

PROGRAMA DE PÓS-GRADUAÇÃO
EM MEDICINA E SAÚDE

GISELA MARIA GUEDES CARNEIRO REIS

EXPERIÊNCIAS TRAUMÁTICAS, TRANSTORNO DE ESTRESSE PÓS-TRAUMÁTICO, IMPULSIVIDADE E COMPORTAMENTOS DE RISCO EM ESTUDANTES UNIVERSITÁRIOS DE DIFERENTES ÁREAS ACADÊMICAS

Dissertação apresentada ao Programa de Pós-graduação em Medicina e Saúde da Faculdade de Medicina da Bahia, Universidade Federal da Bahia, como requisito parcial para a obtenção do título de Mestre em Medicina e Saúde.

Orientadora: Profª. Drª. Aline Santos Sampaio

Salvador
2017

GISELA MARIA GUEDES CARNEIRO REIS

EXPERIÊNCIAS TRAUMÁTICAS, TRANSTORNO DE ESTRESSE PÓS-TRAUMÁTICO, IMPULSIVIDADE E COMPORTAMENTOS DE RISCO EM ESTUDANTES UNIVERSITÁRIOS DE DIFERENTES ÁREAS ACADÊMICAS

Dissertação de autoria de Gisela Maria Guedes Carneiro Reis, intitulada "Experiências traumáticas, transtorno de estresse pós-traumático, impulsividade e comportamentos de risco em estudantes universitários de diferentes áreas acadêmicas", apresentada à Universidade Federal da Bahia como requisito parcial para a obtenção do título de Mestre em Medicina e Saúde.

Salvador, 03 de fevereiro de 2017.

BANCA EXAMINADORA

Ângela Marisa de Aquino Miranda Scippa.
Doutorado em Ciências pela Universidade Federal de São Paulo (1998). Professora Associada III do Departamento de Neurociências e Saúde Mental da Universidade Federal da Bahia. Professora Permanente do Programa de Pós-graduação em Medicina e Saúde (PPgMS) da Universidade Federal da Bahia.

Fabiana Nery Fernandes.
Doutorado em Medicina e Saúde pela Universidade Federal da Bahia (2012).
Professora Adjunta do Departamento de Neurociências e Saúde Mental da Faculdade de Medicina da Universidade Federal da Bahia

Roberta Ferrari Marback.
Doutorado em Ciências pela Universidade de São Paulo (2007). Professora da Universidade Salvador (UNIFACS).

Dedico esta dissertação ao meu pai, Ivan Carneiro, por ter me ensinado, através de seus exemplos, a importância da seriedade, responsabilidade e dedicação frente aos compromissos assumidos.

À minha mãe, Maria Glícia Carneiro, pelo cuidado e apoio sempre presentes no meu dia a dia.

Ao meu marido, Fred Reis, pelo companheirismo incansável e irrestrito ao longo de minha trajetória acadêmica.

Ao meu filho, Hugo Reis, cuja existência – por si só – faz toda a diferença em em minha vida.

AGRADECIMENTOS

À minha orientadora Aline Sampaio, pelo acolhimento, confiança e, principalmente, paciência nos momentos difíceis. Sua conduta de pesquisadora me inspira a continuar trilhando este caminho.

À Lucas Quarantini, pela confiança e apoio - fundamentais para meu ingresso no mestrado -, e pelas valiosas contribuições durante esta jornada. Faltam palavras para expressar o quanto sou agradecida.

À Ângela Scippa, por ter "aberto as portas" do CETHA, permitindo que eu desse os primeiros passos na pesquisa científica. A você, "madrinha", meu profundo carinho, admiração e respeito.

À minha mestre e amiga Sídnei Lira, pelo constante incentivo ao meu aprimoramento acadêmico e profissional, e por se fazer presente em todos os momentos importantes de minha vida. A você, minha gratidão e amizade, sempre.

À amiga Mychelle Morais, pelas orientações, pela preocupação nos momentos difíceis, e por ter se colocado sempre à disposição para me apoiar. Não poderia haver prova maior de afeto. Muito obrigada.

Ao meu amigo e professor, Gustavo Ban, por ter aceito tão gentilmente meu pedido para que fizesse a correção do artigo em inglês. É muito bom saber que posso contar com você.

Ao meus irmãos, Jussara Carneiro e Ivan Carneiro, pelo amor manifestado através do carinho e compreensão pelas muitas ausências devido aos compromissos acadêmicos.

Aos amigos e colegas Bezerra Filho, Adriana Duarte, Juliana Laranjeira, Glória Orge e Patrícia Cavalcanti. Tê-los nesta caminhada fez a diferença, podem acreditar.

Aos professores do Programa de Pós-Graduação em Medicina e Saúde (PPgMS) da Faculdade de Medicina da Universidade Federal da Bahia (UFBA), e às funcionárias Carina Santana e Fernanda Oliveira. Obrigada por fazerem parte de minha jornada.

À Deus, inteligência suprema e infinita bondade, por constantemente oferecer oportunidades para que eu me torne um ser humano melhor (embora nem sempre eu as reconheça).

“ Por vezes sentimos que aquilo que fazemos não é senão uma gota de água no mar. Mas o mar seria menor se lhe faltasse uma gota.*”*

Madre Teresa de Calcutá

RESUMO

Introdução: Estudantes universitários são considerados uma população vulnerável ao adoecimento mental e ao engajamento em comportamentos de risco. Até o momento, não foram encontrados na literatura estudos que examinem presença de transtorno de estresse pós-traumático (TEPT), impulsividade e comportamentos de risco em estudantes universitários, agrupando-os de acordo com suas áreas acadêmicas, o que pode contribuir para uma compreensão mais fidedigna do perfil dessa população. **Objetivos:** a) Descrever as informações existentes na literatura sobre avaliação de traços de personalidade e/ou temperamento em estudantes universitários; b) Investigar as prevalências de experiências traumáticas, transtorno de estresse pós-traumático, impulsividade e comportamentos de risco em estudantes universitários agrupados em diferentes áreas acadêmicas. **Método:** A busca dos artigos da revisão de literatura foi realizada através do *PubMed*, utilizando os seguintes termos: *personality, impulsivity, student, college, university*. Quanto ao artigo original, de corte transversal, foram avaliados 2.213 estudantes universitários, reunidos em três grupos: área de Ciências Exatas (265 estudantes), área de Ciências da Saúde (508 estudantes) e área de Ciências Humanas (1.440 estudantes). TEPT foi acessado através da PCL-C. A impulsividade foi avaliada através da BIS-11. Investigou-se a exposição a eventos potencialmente traumáticos através do THQ . O uso de substâncias e o engajamento em comportamentos de risco foram acessados através de perguntas do tipo “Sim/Não”. **Resultados:** Na revisão de literatura, cinco artigos sugeriram a associação entre fatores de personalidade e comportamentos mal-adaptativos. Os resultados do artigo original apontaram que, dentre as três áreas acadêmicas, Ciências Humanas destacou-se como aquela cuja prevalência de estudantes com TEPT e com alta impulsividade foi maior (14,9% e 17%, respectivamente). **Conclusão:** Estudantes de diferentes áreas de estudo apresentaram prevalências distintas quanto ao diagnóstico de TEPT e níveis de impulsividade. Entretanto, estudantes da área de Ciências Humanas constituem um grupo cuja atenção dos serviços de saúde parece se fazer mais necessária.

Palavras-Chave: Evento traumático. TEPT. Impulsividade. Estudante. Universidade.

ABSTRACT

Introduction: *College students are considered vulnerable to mental illnesses and to engagement in risk behaviors. Until the present moment, no studies have been found identifying the presence of Post-traumatic stress disorder (PTSD), impulsivity and risk behaviors in college students, neither have there been studies correlating these variables to specific academic fields of study, thus yielding a more precise understanding of this population's profile.* ***Objectives:*** *a) To describe existing data in the literature on the evaluation of personality traits and/or temperament in undergraduate students; b) To investigate the prevalence of traumatic experiences, post-traumatic stress disorder, impulsivity and risky behaviors in college students according to their academic fields of study.* ***Method:*** *The search for literature review articles was done through PubMed by using the following keywords: personality, impulsivity, student, college, and university. The original cross section article from which this paper originated evaluated 2.213 undergraduate students that were gathered in three groups: Exact Sciences (265 students), Health Sciences (508 students), and Human Sciences (1.440 students). PTSD was assessed through the PTSD Checklist - Civilian Version (PCL-C). Impulsivity was evaluated through the Barrat Impulsivity Scale (BIS-11). Exposure to potentially traumatic events was investigated through the Trauma History Questionnaire (THQ). Use of substances and engagement in high risk behaviors were assessed through "yes/no" questions.* ***Results:*** *The literature review yielded five articles that suggested an association between personality traits and maladaptive behaviors. The results from the original article pointed that among the three academic fields, Human Sciences stood out as the field with the highest prevalence for PTSD and high impulsivity (14.9% and 17% respectively).* ***Conclusion:*** *Students from different academic fields presented distinct prevalences in regard to PTSD diagnosis and levels of impulsivity. However, students from the Human Sciences as a group seem to demand more attention from mental health services.*

Keywords: *Traumatic experience. PTSD. Impulsivity. Student. University.*

LISTA DE TABELAS

ARTIGO 1

ARTIGO 2

LISTA DE ABREVIATURAS E SIGLAS

ASLEC	*Adolescent Self-Rating Life Events Checklist*
BAI	*The Beck Anxiety Inventory*
BDI	*The Beck DepressionInventory*
BIS-11	*Barratt Impulsiveness Scale – 11th revision*
BIS/BAS	*Behavior Inhibition/Activation Scales*
CCT	*Columbia Card Task*
CETHA	Centro de Estudos de Transtornos de Humor e Ansiedade
CIAS	*Chen Internet Addiction Scale*
Com-HUPES	Complexo Hospitalar Universitário Professor Edgard Santos
DSM-IV	*Diagnostic and Statistical Manual of Mental Disorders – fourth edition*
DTS	*Distress Tolerance Scale*
E	*Extroversão/introversão*
EPQA	*Eysenck Personality Questionnaire for Adults*
EPQR-S	*Eysenck Personality Questionnaire Revised short form*
ERQ	*Emotion Regulation Questionnaire*
FACES	*Family Adaptability and Cohesion Scale*
LMS	*Langer Mindfulness Scale*
MINI	*Mini-International Neuropsychiatric Interview*
IAS	*The Internet Addiction Scale*
IAT	*Young´s online Internet Addiction Test*
ImpSS	*Impulsive Sensation Seeking Subscale*
L	*Escala de mentira*
MAI	*Multidimensional Anger Inventory*

MPQ-BF	*Multidimensional PersonalityQuestionnaire–Brief Form*
N	*Neuroticismo/estabilidade*
S	*Psicotismo/socialização*
PCL-C	*Posttraumatic Stress Disorder Check-List – civilian version*
PAI-BOR	*Personality Assessment Inventory–Borderline Features Scale*
PANAS	*The Positive and Negative Affect Schedule*
PASAT	*Paced Auditory Serial AdditionTask*
PPgMS	Programa de Pós-graduação em Medicina e Saúde
PTSD	*Post-traumatic Stress Disorder*
SIAS	*Social Interaction Anxiety Scale*
SPSS	*Software Package for Statistics and Simulation*
TAS-20	*The Toronto Alexithymia Scale-20*
TPB	Transtorno de Personalidade *Bordeline*
TCI	*The Temperament and Character Inventory*
TEPT	Transtorno de Estresse Pós-traumático
THQ	*Trauma History Questionnaire*
TNASS	*Tolerance of Negative Affective States Scale*
TS	Tolerância ao sofrimento
UFBA	Universidade Federal da Bahia
UPPS-P	*Impulsive Behavior Scale*
VI	Vício em internet
WCST	*Wisconsin Card Sorting Task*

SUMÁRIO

1 INTRODUÇÃO

Estudos apontam que estudantes universitários representam uma população vulnerável a desfechos físicos e psicológicos negativos. O ingresso no ensino superior é marcado por significativas mudanças na vida desses jovens, envolvendo muitas vezes a saída da casa dos pais para estudar em outra cidade, formação de novos grupos sociais e contato com culturas diferentes (1, 2). Estas mudanças no contexto de vida, aliadas ao processo ainda incompleto de maturação neurobiológica, colocam esses estudantes em uma condição favorável à exposição a eventos potencialmente traumáticos, e consequente desenvolvimento de Transtorno de Estresse Pós-Traumático (TEPT), bem como engajamento em comportamentos de risco (uso de substâncias e sexo sem proteção) (3).

Vários estudos têm investigado transtornos mentais em estudantes universitários, mas poucos examinam TEPT (4, 5). Este transtorno tem sido amplamente estudado no contexto ocupacional; entretanto, variáveis antecedentes à prática profissional não vêm sendo exploradas (6, 7).

São vastas as pesquisas que sugerem a associação entre impulsividade e TEPT, e impulsividade e comportamentos de risco (8, 9). Até o momento, entretanto, não foram encontrados estudos que avaliam a prevalência dessas variáveis em estudantes universitários de diferentes áreas de estudo.

Esta dissertação apresenta-se estruturada na forma de um artigo de revisão, cujo objetivo foi descrever as informações existentes na literatura nos últimos 10 anos sobre avaliação de traços de personalidade e/ou temperamento em estudantes universitários, e de um artigo original, descrevendo a prevalência de eventos potencialmente traumáticos, TEPT, impulsividade e comportamentos de risco em estudantes universitários de diferentes áreas acadêmicas, matriculados em sete instituições de ensino superior no nordeste brasileiro.

2 OBJETIVOS

Principais

Descrever as informações existentes na literatura, nos últimos 10 anos, sobre avaliação de aspectos da personalidade e/ou temperamento em estudantes universitários.

Investigar a prevalência de TEPT e níveis de impulsividade entre estudantes matriculados em sete instituições de ensino superior no nordeste brasileiro, agrupados em três diferentes áreas acadêmicas (Ciências Exatas, Ciências da Saúde e Ciências Humanas).

Secundários

Investigar a prevalência de exposição a eventos potencialmente traumáticos entre estudantes matriculados em sete instituições de ensino superior no nordeste brasileiro, agrupados em três diferentes áreas acadêmicas (Ciências Exatas, Ciências da Saúde e Ciências Humanas).

Investigar a prevalência do uso de substâncias e engajamento em comportamentos de risco nas diferentes áreas acadêmicas.

Investigar a prevalência dos subfatores de impulsividade entre estudantes do primeiro e do último semestre teórico, nas diferentes áreas acadêmicas.

3 RESULTADOS

3.1 Artigo de revisão

Avaliação de personalidade em estudantes universitários: uma revisão de literatura.

Gisela Maria Guedes-Carneiro[1], Sara Matos[3], Aline Sampaio[1,2]

[1]Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Brasil.
[2]Departamento de Neurociências e Saúde Mental, Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Brasil.
[3]Faculdade de Serviço Social, Universidade Federal da Bahia, Brasil.

Correspondência: R. Dr. Augusto Viana, S/n – Canela - Salvador - BA, Brasil CEP:40110-060 Telefone: 51-71- 3283-8251
e-mail: giselaguedes@hotmail.com

Resumo

O ingresso no ensino superior compreende uma fase em que ocorrem mudanças significativas na vida dos estudantes nos âmbitos familiar, social e acadêmico. Desta maneira, estudantes universitários constituem-se em uma população vulnerável a eventos estressores. Alguns autores defendem que uma avaliação de personalidade no início da vida acadêmica favoreceria suporte e orientação mais adequados a esses estudantes em um momento de crise. Com base nesse cenário, este estudo se propôs a realizar uma revisão de literatura sobre artigos que investigavam medidas de personalidade e/ou temperamento nessa população. Dos estudos pesquisados, apenas seis artigos descreveram algum tipo de mensuração de personalidade/temperamento.

Palavras-chave: personalidade, impulsividade, estudante, universidade.

Abstract

Admittance to higher education takes place at a time in which significant changes are happening in the social, academic and family realms of a student's life. As a result, college students are part of a population that is vulnerable to stressor events. Some authors hold that a personality assessment done at the beginning of a student's academic life would yield more adequate support and guidance to them in a moment of crisis. By taking this context into account, this study aimed at carrying out a literature review on articles that investigated personality and/or temperament measures in this population. Among the studies that were found in the search, only six articles described some kind of personality/temperament measure.

Keywords – personality, impulsivity, student, university.

Há vasta literatura que aponta a entrada no ensino superior como uma fase importante, mas também estressante para os estudantes, devido à necessidade de ajustamento às novas demandas sociais, interpessoais e acadêmicas (1).

Segundo Silveira *et al* (2) existem muitas variáveis relacionadas ao ingresso dos jovens na universidade, incluindo a competição para serem admitidos em determinadas instituições e/ou cursos, e o comum despreparo para lidar com as demandas acadêmicas.

O ingresso na universidade comumente corresponde ao momento de saída da casa dos pais e distanciamento dos familiares e amigos. Nessa nova etapa, os jovens adultos ganham autonomia e formam novos vínculos afetivos, o que pode gerar situações de crise e conflito. Indivíduos nessa fase da vida são geralmente expostos a circunstâncias que podem torná-los vulneráveis à exposição a situações estressoras e/ou de risco, e ao desenvolvimento de doenças psiquiátricas (3). Diversos autores apontam maior freqüência e gravidade dos transtornos psiquiátricos entre estudantes universitários, quando comparados à população de jovens já inseridos no mercado de trabalho, ajustados para sexo e idade (4, 5).

De acordo com Smith (6), traços de personalidade poderiam influenciar a exposição a situações sociais relacionadas ao bem-estar. A personalidade é compreendida por um conjunto-padrão de traços que explica a forma relativamente consistente e estável de como sentimentos, pensamentos e ações são expressos em uma variedade de situações ao longo da vida. A personalidade está relacionada às idiossincrasias do comportamento de uma pessoa (7, 8).

Em face deste cenário, Celeste Silveira (2) destacou que alguns pesquisadores entendem como relevante uma avaliação da personalidade no ingresso da vida acadêmica, o que poderia nortear o acompanhamento psicológico dos

estudantes nos momentos em que porventura ocorressem conflitos pessoais, familiares ou acadêmicos (2).

Diante do exposto, este estudo objetivou descrever as informações existentes na literatura sobre avaliação de traços de personalidade e/ou temperamento em estudantes universitários.

Método

A busca foi realizada na base de dados PubMed, através das palavras-chave *personality, impulsivity, student, college e university*. Os critérios de inclusão foram estudos em humanos publicados nos últimos 10 anos e que avaliaram traços de personalidade e/ou temperamento em estudantes universitários. O critério de exclusão foi a ausência de descrição das medidas de personalidade e/ou temperamento nos resultados apresentados pelos artigos. Dos títulos e resumos encontrados, foram excluídos os trabalhos que não preenchiam os critérios de inclusão. Restaram vinte e um artigos, não tendo sido possível o acesso, no PubMed, ao texto completo de um deles. Os demais foram avaliados quanto à ausência do critério de exclusão, e seis foram incluídos na revisão.

Resultados

Os artigos que descreveram alguma medida de personalidade e/ou temperamento estão descritos por ordem crescente do ano de publicação, conforme a seguir:

Em 2008, 280 estudantes de graduação, matriculados em cursos de psicologia de uma universidade pública completaram uma pesquisa *online* com o objetivo de examinar como diferenças individuais na vivência de ansiedade social estavam relacionadas à evitação (perigo/ansiedade) e aproximação (curiosidade, novidade, aumento do *status* social), avaliação de interações sociais e comportamentos de risco (sexo, uso de substâncias e agressão)

(Kashdan, TB, *et al*) (9). Três meses depois, os participantes foram solicitados a relatar sua freqüência de comportamentos de desinibição desde a avaliação inicial. Os estudantes universitários completaram os seguintes instrumentos: *Social Interaction Anxiety Scale* (SIAS), acessa as tendências de ser medroso e de evitar situações sociais envolvendo avaliação negativa e rejeição; *Beck Depression Inventory* (BDI-II), acessa a gravidade dos sintomas depressivos; *Emotion Regulation Questionnaire* (ERQ), o qual mede diferentes maneiras do indivíduo manejar suas emoções; *Multidimensional Anger Inventory*, (MAI) mede a frequência, duração, magnitude e modo de expressar a raiva, bem como a variedade de situações indutoras de raiva; *Langer Mindfulness Scale* (LMS), mede quatro aspectos do pensamento"*mindful*" (atenção plena) e da consciência, incluindo busca por novidade, engajamento, produção de novidade e flexibilidade; *Social Provisions Scale*, acessa a percepção do indivíduo quanto ao seu suporte social; *Relatedness Scale*, utilizada para acessar o grau em que as pessoas avaliam como satisfatórias e significativas suas relações com os outros; *Risk-taking behaviors and appraisals* — os participantes foram perguntados sobre eventos sociais e comportamentos de risco, tais como beber excessivamente, usar drogas ilícitas, atividades sexuais de risco, comportamentos agressivos e esportes de alto risco.

A amostra foi agrupada conforme o nível de ansiedade social: grupo 1, "ansiedade mínima", correspondendo a 28.2% da amostra; grupo 2, "orientado para a aproximação", com 34,6% da amostra; e "orientado para a evitação", com 37.1% da amostra. As médias e desvios-padrão para os três grupos foram, respectivamente, 18.93 (DP= 11.36), 28.13 (DP=13.04) e 23.99 (DP= 12.70).

As diferenças nos escores obtidos através dos instrumentos que avaliaram características de personalidade nos grupos estudados foram estatisticamente significantes (Tabela 1).

Tabela 1. Escores de características de personalidade de acordo com os grupos avaliados

Instrumentos	Grupo Ansiedade mínima		Grupo orientado para aproximação		Grupo orientado para evitação		F (2,278)
	M	DP	M	DP	M	DP	
ERQ - supression[1]	14.45	4.82	14.81	4.90	12.30	4.99	7.56**
MAI - Anger-in[2]	14.07	3.22	15.65	3.35	15.41	3.44	5.40**
MAI - Anger-out[3]	12.48	3.44	13.88	3.05	12.74	2.78	5.36**
LMS (escore total)	38.54	6.78	37.67	5.30	39.56	13.13	3.28*
SPS (escore total)	60.68	6.40	60.02	5.57	62.51	4.28	5.72**
Relatedness	42.31	6.96	40.62	7.08	43.55	5.12	4.97**

[1]ERQ (*Emotion Regulation Questionnaire*)- supressão; [2]MAI (*Multidimensional Anger Inventory*), raiva internalizada, [3]MAI, raiva externalizada; LMS (*Langer Mindfulness Scale*); SPS (*Social Provisions Scale).*
M: média DP: desvio-padrão F: MANOVA (Análise de Variância Multivariada) * p< .05 ** p< .01

319 estudantes universitários de duas universidades no Ankara foram voluntários no estudo conduzido por Dalbudak, E, *et al* (2013) (10). Os estudantes foram investigados utilizando-se os seguintes instrumentos: (*The Toronto Alexithymia Scale-20* (TAS-20), instrumento que acessa "pensamentos externamente orientados", "dificuldade em identificar sentimentos" e "dificuldade em descrever sentimentos"; *The Temperament and Character Inventory* (TCI): escala autoaplicada que avalia traços de temperamento (esquiva, busca por novidade, dependência por recompensa e persistência) e caráter (autodirecionamento, cooperatividade e autotranscendência); *The Internet Addiction Scale* (IAS): instrumento que mede o nível do vício em internet; BDI: escala que avalia os sintomas e a gravidade da depressão; BAI *The Beck Anxiety Inventory* (BAI): escala que avalia os sintomas e a gravidade da ansiedade.

De acordo com a escala IAS, os participantes deste estudo foram divididos em três grupos diferentes, de acordo com o vício em internet (VI): moderado/alto VI (ponto de corte do IAS em 81), leve VI (pontuação do IAS entre 61-80), e grupo sem VI (pontuação do IAS entre 30-60). 12.2% (n=39) foram categorizados no grupo de moderado/alto VI (VI 7.2%, grupo de alto risco 5.0%), 25.7% (n=82) foram categorizados no grupo de leve VI e 62.1% (n=198) foram categorizados no grupo sem VI.

Os escores das dimensões “busca por novidade”, “autodirecionamento” e “cooperatividade” apresentaram diferenças estatisticamente significantes. As demais dimensões de temperamento e caráter não diferiram entre os grupos (Tabela 2).

Tabela 2. Escores de traços de personalidade de acordo com os grupos avaliados

Dimensões	Grupo nenhum vício em internet		Grupo vício leve em internet		Grupo ício moderado/grave em internet		*p*
	M	DP	M	DP	M	DP	
NS[1]	18.74	4.82	19.99	4.97	20.77	4.65	0,020*
Esquiva	16.98	5.54	17.83	4.88	18.13	5.68	0,304
Dependente de recompensa	13.71	3.22	13.44	3.27	13.03	2.89	0,444
Persistência	4.59	1.88	4.51	1.95	4.15	2.31	0,452
SD[2]	28.20	6.58	26.06	5.92	23.80	6.74	<0,001*
C[2]	28.76	5.99	25.88	6.87	25.41	5.51	<0,001*
Autotranscendência	19.84	5.60	19.49	5.05	20.31	4.54	0,726

[1]moderado/alto > leve > sem vício; [2] moderado/alto, leve < sem vício
M: média DP: desvio-padrão * significância estatística
NS, busca por novidade; SD, autodirecionamento; C, cooperatividade.

Em outro estudo selecionado nesta revisão, Dong, G, et al (2013) (11), aplicaram o questionário *Eysenck Personality Questionnaire for Adults* (EPQA) em 868 estudantes, logo após seu ingresso na universidade. Este instrumento avalia quatro dimensões: extroversão/introversão (E); neuroticismo/estabilidade (N); psicotismo/socialização (S); e escala de mentira (L). Dois anos depois, 43 deles foram considerados viciados em internet, tal como definido pelas elevadas pontuações no teste *Young’s online Internet Addiction Test* (IAT), uma escala online composta de 20 itens associados ao uso de internet online, incluindo dependência psicológica, uso compulsivo e abstinência, bem como problemas relacionados à escola ou trabalho, sono, família e gerenciamento do tempo.

Conforme tabela 3, os resultados sugerem que os traços de personalidade relacionados ao vício em internet incluem neuroticismo, psicotismo e imaturidade.

Tabela 3. Diferenças entre o grupo de viciados em internet e o grupo-controle, conforme questionário EPQA

Escalas	Viciados em internet (n=49)		Grupo-controle (n=49)			
	M	DP	M	DP	*t*	p
E (escore)	50.62	9.51	49.68	10.53	0.693	0.392
N (escore)	54.98	9.88	50.44	10.17	5.632	0.000*
P (escore)	57.61	10.27	49.14	10.39	9.773	0.000*
L (escore)	46.17	8.63	52.07	9.69	-4.792	0.000*

EPQA: *Eysenck Personality Questionnaire for Adults*
E: extroversão; N: neuroticismo; P: psicotismo; L: mentira
M: média DP: desvio-padrão *t*: teste *t* * significância estatística

Buelow, M. T.(2014) (12) investigou 489 estudantes de uma universidade no centro-oeste dos Estados Unidos sobre personalidade, humor e funções executivas como preditores de desempenho em uma tarefa para medir "tomada de decisão", denominada *Columbia Card Task* (CCT). Nesse jogo de computador, uma série de 32 cartas é apresentada aos participantes, havendo cartões de ganho e cartões de perda. São apresentadas algumas informações, a partir das quais os participantes decidirão quantas cartas irão virar e quanto de risco desejam assumir. São elas: a) o número de cartas de perda (1 ou 3), b) o montante a ser ganho caso seja selecionada uma carta de ganho (10 ou 30 pontos), e c) o montante a ser perdido se uma carta de perda for escolhida (250 ou 750 pontos).O jogo avalia dois componentes diferentes de "tomada de decisão":"*hot decision-making*" (tomada de decisão do tipo emocional/instintiva) e "*cold decision-making*" (tomada de decisão com base na análise e avaliação objetiva dos fatos).

Os seguintes instrumentos foram aplicados: *The Positive and Negative Affect Schedule* (PANAS), utilizado para avaliar o nível de humor positivo e negativo presente naquele momento; *Impulsive Sensation Seeking Subscale* (ImpSS), utilizado para medir a "busca por novidade"; *Behavior Inhibition/Activation Scales* (BIS/BAS), a qual avalia os níveis de inibição e ativação comportamental. A subescala BIS mede a sensibilidade a sinais de punição, e a subescala BAS mede a sensibilidade a sinais de recompensa/reforçamento; *The Digit Span,* um subteste da *Wechsler Adult Intelligence Scale–IV*, utilizado

para medir a capacidade da memória de trabalho; *Wisconsin Card Sorting Task* (WCST), que mede diferentes funções executivas, incluindo pensamento abstrato, resolução de problemas, perseverança e capacidade de mudança de padrão cognitivo.

Os resultados indicaram que indivíduos com altas pontuações na escala BIS (e, portanto, mais sensíveis a sinais de punição) arriscaram menos no CCT-*cold*. As demais medidas relacionadas a traços de personalidade não apresentaram correlação estatisticamente significante com os desempenhos no CCT-*cold* e CCT-*hot* (Tabela 4).

Tabela 4. Médias, desvios-padrão e escores mínimo e máximo dos traços de personalidade, conforme tipo de tomada de decisão no CCT.

Variáveis	M	DP	Min	Max
CCT-*cold**				
ImpSS	0.46	0.22	0.00	1.00
BIS	2.81	0.57	1.00	4.00
BAS-D (iniciativa, motivação)	2.75	0.67	0.35	4.00
BAS-R (sensibilidade à recompensa)	3.45	0.48	1.60	7.20
BAS-F (busca por diversão)	2.97	0.60	1.75	4.00
CCT-*hot**				
ImpSS	0.46	0.22	0.05	1.00
BIS	2.95	0.55	1.00	4.00
BAS-D (iniciativa, motivação)	2.81	0.60	1.50	4.00
BAS-R (sensibilidade à recompensa)	3.50	0.46	2.20	5.00
BAS-F (busca por diversão)	3.03	0.59	1.25	4.00

M = média DP = desvio-padrão Min = escore mínimo Max = escore máximo
CCT= *Columbia Card Task* ; ImpSS= *Impulsive Sensation Seeking Subscale* ;
BIS= *Behavior Inhibition Scale from the* BIS/BAS;
BAS= *Behavior Activation Scale from the* BIS/BAS.
* não houve diferenças estatisticamente significantes entre os grupos

Um estudo conduzido por Kiselica, AM, *et al* (2014) (13) teve o propósito de entender a contribuição de estados afetivos e comportamentos atuais, padrões de personalidade e estressores ambientais para a Tolerância ao Sofrimento (TS) em duas amostras diferentes: 227 adultos em tratamento residencial por uso de substância (amostra 1), e 223 estudantes da universidade do sul da Flórida/Estados Unidos (amostra 2). As variáveis acima foram mensuradas através dos seguintes instrumentos: *Tolerance of Negative Affective States*

Scale (TNASS), questionário sobre habilidades de tolerar diferentes emoções negativas, incluindo medo, desconforto social, ansiedade, tristeza, raiva e repugnância; *Frustration Discomfort Scale* (FDS), mensura a capacidade (força) do respondente em tolerar frustração; *Distress Tolerance Scale* (DTS), avalia a capacidade do indivíduo em experimentar e suportar estados emocionais negativos; (*Paced Auditory Serial Addition Task* (PASAT) e *Mirror Tracing Persistence Task*, ambos são testes que medem o comportamento de TS através da avaliação da persistência do indivíduo em determinada tarefa; *Multidimensional Personality Questionnaire–Brief Form* (MPQ-BF), o qual explora padrões de da personalidade, incluindo bem-estar, reações ao estresse, agressividade, controle, sociabilidade, tradicionalismo, dentre outros; *Impulsive Behavior Scale* (UPPS-P), o qual mede cinco dimensões distintas da impulsividade: urgência negativa (responder abruptamente ao afeto negativo), urgência positiva (responder abruptamente ao afeto positivo), premeditação (ausência de planejamento), perseverança, e busca de emoções; "*State Affect and Stress*", usado para medir o estado afetivo ao longo da semana anterior; "*Perceived Stress Scale*", escala que mede o grau em que o indivíduo percebeu seu estresse durante o mês anterior; *Mini-International Neuropsychiatric Interview* (MINI), uma entrevista diagnóstica estruturada para os transtornos do Manual Diagnóstico e Estatístico de Transtornos Mentais 4ª edição (DSM-IV), a fim de rastrear sintomas para a depressão, transtornos de ansiedade (incluindo TEPT), e dependência de álcool e drogas; *Personality Assessment Inventory–Borderline Features Scale* (PAI-BOR), instrumento que identifica a presença de Transtorno de Personalidade *Bordeline*. Por fim, os comportamentos observáveis de risco ocorridos no ano anterior, incluindo autolesão, tentativas de suicídio e brigas físicas foram acessados através do "*The National College Health Risk Behavior Survey*".

Indivíduos em tratamento por uso de drogas relataram serem mais impulsivos do que os participantes universitários, apresentando baixa perseverança e alta urgência negativa e também positiva (Tabela 5). Análises de correlação sugeriram que o autorrelato de tolerância ao sofrimento foi particularmente associado, em ambas as amostras, à tendência de experimentar estresse e emoções negativas, e ser impulsivo (particularmente na "urgência negativa").

Tabela 5. Médias e desvios-padrão das pontuações feitas na MPQ-BF (*Multidimensional Personality Questionnaire–Brief Form*) e no UPPS-P (*Impulsive Behavior Scale*), no grupo em tratamento por uso de droga e no grupo-controle (estudantes universitários).

	Grupo em tratamento (uso de drogas)		Grupo-controle (universitários)		*t*
	M	DP	M	DP	
MPQ-BF *(Multidimensional Personality Questionnaire-Brief Form)*					
Bem-estar	7.98	3.05	8.78	3.06	2.75*
Poder/Força social	6.70	2.09	6.49	1.55	-1.20
Realização	7.06	2.65	7.29	2.63	0.94
Aproximação social	7.07	1.92	6.40	1.54	-4.08**
Reação ao estresse	7.49	3.40	6.00	3.51	-4.58**
Alienação	5.50	3.31	3.81	2.92	-5.75**
Agressão	4.62	3.10	3.31	2.35	-5.06**
Controle	7.00	2.13	7.79	1.85	4.17**
Evitação de danos	6.43	1.71	6.39	1.59	-0.23
Tradicionalismo	6.96	1.96	7.06	2.06	0.54
Concentração	6.70	2.82	7.76	2.62	4.14**
UPPS-P (*Impulsive Behavior Scale*)					
Perseverança	22.08	5.08	19.45	4.80	-5.41**
Urgência positiva	36.56	9.11	25.39	8.30	-13.04**
Urgência negativa	34.33	6.25	26.68	6.95	-11.74**
Busca por sensação	34.80	7.47	34.28	7.44	-0.72

A amostra de tratamento por uso de drogas foi codificada como "0", e a amostra de universitários foi codificada como "1"; logo, os valores negativos para o teste *T* indicam pontuações mais altas na amostra de tratamento por uso de drogas.

M = média DP = desvio-padrão *p < .01 **p < .001

Yan, W, *et al* (2014) (14) conduziram uma investigação sobre a relação entre recentes eventos estressores, traços de personalidade, percepção do funcionamento familiar e VI em 892 estudantes universitários da China. Os participantes foram classificados em categorias (não viciados, levemente VI e gravemente VI), de acordo com a *Chen Internet Addiction Scale* (CIAS), a qual acessa os sintomas de uso compulsivo, abstinência, tolerância, problemas interpessoais e de saúde, e tempo para gerenciar problemas. Os demais instrumentos utilizados foram: *Adolescent Self-Rating Life Events Checklist* (ASLEC), utilizado para acessar o sofrimento subjetivo do indivíduo em relação aos eventos estressantes de vida vivenciados nos últimos 12 meses; *Eysenck Personality Questionnaire Revised short form* (EPQR-S), instrumento para acessar três dimensões da personalidade: Neuroticismo, Extroversão e

Psicotismo; *Family Adaptability and Cohesion Scale* (FACES), escala que acessa a percepção do funcionamento familiar, incluindo coesão familiar e adaptação a situações estressoras. Houve diferença estatisticamente significante entre as médias dos escores dos domínios de personalidade entre os grupos avaliados, e Neuroticismo revelou-se como potencial preditor de VI (Tabela 6):

Tabela 6. Médias e desvios-padrão dos escores dos domínios de personalidade conforme o EPQR-S

	Grupos							
	Não viciados		levemente VI		gravemente VI		*F*	
	M	DP	M	DP	M	DP		
EPQR-S								
neuroticismo	5.1	3.1	6.0	3.0	7.1	2.9	22.005*	não viciados < leve VI < grave VI
extroversão	8.2	2.8	8.1	2.6	6.7	2.5	11.00*	não viciados = leve VI > grave VI
psicotismo	2.7	1.6	3.1	1.9	3.5	1.8	8.050*	não viciados < grave VI
mentira	5,2	2,5	4,7	2,3	4,8	2,3	2.525	não viciados = leve VI = grave VI

VI: viciados em internet; EPQR-S: *Eysenck Personality Questionnaire- Revised short for.*
M: média DV: desvio-padrão *F: MANOVA* (Análise de Variância Multivariada) * p<0.001.

Conclusão

Poucos foram os artigos encontrados nesta revisão. Com exceção de um, os demais artigos investigaram possíveis relações entre comportamentos disfuncionais e padrões de personalidade/temperamento. Os achados desta revisão indicam que traços de personalidade/temperamento estão associados a desfechos negativos, como vício em internet e uso de drogas. 3 artigos descreveram uma associação entre traços de personalidade (neuroticismo e psicotismo) e vício em internet. 1 artigo apontou relação entre uso de drogas e maior impulsividade, menor perseverança e altas urgências negativa e positiva. A busca em apenas uma base de dados, e o pequeno número de artigos representam limitações nesta revisão.

Os resultados apresentados revelam a importância de estudos que tracem um perfil dos estudantes universitários, a fim de que intervenções preventivas possam ser planejadas e implementadas nas instituições de ensino superior. Faz-se necessário minimizar a vulnerabilidade desses estudantes frente às

demandas inerentes à vida acadêmica, ocasião em que mudanças significativas e situações estressoras ocorrem na vida desses jovens adultos.

A partir desta revisão de literatura foi possível levantar a quantidade e os resultados relevantes sobre tal temática. Conclui-se que há lacunas no conhecimento associadas à avaliação de traços de personalidade em estudantes universitários, verificando-se a existência de um limitado campo de estudo que enfatiza esse objeto de estudo.

REFERÊNCIAS

1.Baker SR. Intrinsic, extrinsic, and amotivational orientations: Their role in university adjustment, stress, well-being, and subsequent academic performance. Current Psychology. 2004;23(3):189-202.
2.Celeste Silveira, Andreia Norton, Isabel Brandão, António Roma-Torres. Saúde mental em estudantes do ensino superior. Acta Med Port. 2011;24(S2):247-56.
3.Blanco C, Okuda M, Wright C, Hasin DS, Grant BF, Liu S-M, et al. Mental health of college students and their non–college-attending peers: Results from the national epidemiologic study on alcohol and related Conditions. Archives of general psychiatry. 2008;65(12):1429-37.
4.Verger P, Guagliardo V, Gilbert F, Rouillon F, Kovess-Masfety V. Psychiatric disorders in students in six French universities: 12-month prevalence, comorbidity, impairment and help-seeking. Social psychiatry and psychiatric epidemiology. 2010;45(2):189-99.
5.Zivin K, Eisenberg D, Gollust SE, Golberstein E. Persistence of mental health problems and needs in a college student population. Journal of affective disorders. 2009;117(3):180-5.
6.Smith TW, MacKenzie J. Personality and risk of physical illness. Annu Rev Clin Psychol. 2006;2:435-67.
7.Pervin LA, John OP. Personalidade: teoria e pesquisa: Artmed Editora; 2009.
8.Hall CS, Lindzey G, Campbell JB. Teorias da personalidade: Artmed Editora; 2000.
9.Kashdan TB, Breen WE. Social anxiety and positive emotions: a prospective examination of a self-regulatory model with tendencies to suppress or express emotions as a moderating variable. Behavior therapy. 2008;39(1):1-12.
10.Dalbudak E, Evren C, Aldemir S, Coskun KS, Ugurlu H, Yildirim FG. Relationship of internet addiction severity with depression, anxiety, and alexithymia, temperament and character in university students. Cyberpsychol Behav Soc Netw.16(4):272-8.
11.Dong G, Wang J, Yang X, Zhou H. Risk personality traits of Internet addiction: a longitudinal study of Internet addicted Chinese university students. Asia Pacific Psychiatry. 2013;5(4):316-21.
12.Buelow MT. Predicting performance on the Columbia Card Task: effects of personality characteristics, mood, and executive functions. Assessment. 2015;22(2):178-87.
13.Kiselica AM, Rojas E, Bornovalova MA, Dube C. The Nomological Network of Self-Reported Distress Tolerance. Assessment. 2015;22(6):715-29.
14.Yan W, Li Y, Sui N. The relationship between recent stressful life events, personality traits, perceived family functioning and internet addiction among college students. Stress and Health. 2014;30(1):3-11.

3.2 Artigo original

Título

Unveiling the Rates of Potential Traumas, PTSD and Impulsivity among Brazilian College Students of Different Academic Fields: a Census Survey

Submetido ao *Journal of Occupational and Environmental Medicine*

Carta do Editor referente à submissão do artigo

JOEM Submission Confirmation for Unveiling the Rates of Potential Traumas, PTSD and Impulsivity among Brazilian College Students of Different Academic Fields: a Census Survey.

JOEM Editorial Office

qua 14/12/2016 19:38

Para:GISELA M GUEDES <giselaguedes@hotmail.com>;

Dec 14, 2016

Mrs GUEDES,

We have received your manuscript entitled "Unveiling the Rates of Potential Traumas, PTSD and Impulsivity among Brazilian College Students of Different Academic Fields: a Census Survey.." Thank you very much for submitting your work to JOEM.

Within the next two weeks we will complete our internal review and will decide whether to send the paper to outside reviewers or whether we choose not to pursue it for publication.

You will be able to check on the progress of your paper by logging on to Editorial Manager as an author, as follows:

http://joem.edmgr.com/

Your username is: Gisa Guedes
Your password is: available at this link

Your manuscript will be given a reference number once an Editor has been assigned.

With best regards,

Journal of Occupational and Environmental Medicine

Title: Unveiling the Rates of Potential Traumas, PTSD and Impulsivity among Brazilian College Students of Different Academic Fields: a Census Survey.

Gisela Maria Guedes Carneiro Reis, BA
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil

Juliana Laranjeira Pereira dos Santos, MSc
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil
Universidade Estadual de Feira de Santana, Feira de Santana, Bahia, Brazil

Sídnei Barbosa de Lira, MSc
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil

Patrícia Cavalcanti Ribeiro, MSc
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil
Escola Multicampi de Ciências Médicas, Universidade Federal do Rio Grande do Norte, Brazil

Liana Rodrigues Netto, PhD
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil

José Rômulo Feitosa Nogueira, PhD
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil
Universidade Federal de Campina Grande , Campina, Grande, Paraíba, Brazil

Karestan Chase. Koenen, PhD
Department of Epidemiology, Mailman School of Public Health Columbia University, New York, NY, United States

Lucas de Castro Quarantini, PhD*
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil
Departamento de Neurociências e Saúde Mental, Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Brazil

Aline Santos Sampaio, PhD*
Programa de Pós-graduação em Medicina e Saúde (PPgMS), Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil
Departamento de Neurociências e Saúde Mental, Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Brazil

*The two authors contributed equally to the final manuscript

Name and address for correspondence:

Gisela Maria Guedes Carneiro Reis
R. Dr. Augusto Viana, S/n – Canela - Salvador - BA, Brasil CEP:40110-060
Telefone: 51-71- 3283-8251
e-mail: giselaguedes@hotmail.com

Sources of funding: the research was financed by the CNPq – Public Notice 2010, process number 474869/2010-5.

Conflits of interest: none declared

Acknowledgments
To The Trauma and Anxiety Disorders Study Group – UFBA:
Mychelle Morais, Adriana Duarte, Amanda Loureiro, Deivson Mundim, Isabela Albuquerque, Rana Barbosa, Lilian Carvalho, Susan Carvalho, Reinilza Nunes, Weslley Batista, Maria Rosa-Dantas, Antonio Dantas, Albaniza Formiga, Fernanda Dias, Fransuélio Nascimento, Jesana Damasceno, Perla Soares, Lene Lima.

Abstract

Objective: The aim of this study was to describe the prevalences of traumatic experiences, post-traumatic stress disorder (PTSD), impulsivity levels and risky behaviors among college students from different academic fields.

Methods: 2.213 participants were divided into three groups: Health Sciences, Exact Sciences and Human Sciences. Univariate analyses were performed in order to describe the rates of PTSD as well as impulsivity levels and its factors. The other data were analyzed according to impulsivity levels, using crosstabulation.

Results: Human Sciences presented a higher prevalence of PTSD, as well as the largest rate of high impulsivity level. There were elevated percentages of students with high impulsivity in the first semester than in the final semester. This difference was accentuated in Exact Sciences.

Conclusions: Our data highlight the importance of developing health services to support interventions according to specific clinical features of each academic field of study.

Keywords – traumatic experience; impulsivity; PTSD; student; university

The admittance into higher education represents a significant phase of transition into adult life. This period is marked by the end of the adolescence stage, and is characterized by important changes in the life of the young ones involving, amongst others, the responsibility for the choice of a profession, the formation of new affective bonds, contact with different cultures and beliefs, greater autonomy and less parental control (1,2). These changes open the way to circumstances that might lead to exposure to potentially traumatic events,

and subsequent development of PTSD (3).

Young adults are still undergoing neurobiological development, specifically in the prefrontal cortex, the region responsible for executive functions and impulse control (4). This leads individuals to higher levels of impulsivity condition, and involvement in risky behaviors, such as substance abuse and unprotected sex (5).

There are some studies that have focused on mental illness in college students (6-9). However, few of them addressed PTSD (7,10), a psychiatric disorder that emerges from exposure to traumatic life experiences. The major symptoms of PTSD are: re-experience the traumatic event, hyperarousal, and avoidance of stimuli correlated with the traumatic experience (10). Blanco et al (7) included an ample appraisal of Axis I and Axis II DSM-IV disorders composed by a nationwide representative sample of college and non-college students, but neither PTSD or fields of study were evaluated.

In another study conducted by our group, PTSD development and its association across levels of impulsivity among university students from seven institutions were evaluated. The prevalence of PTSD was 14% among which the most impulsive were the most affected (11). These findings raise the following questions: being exposed to a traumatic event or having PTSD diagnosis is related with other factors of academic context, such as field of study? Additionally, do impulsivity levels diverge across different academic fields?

Occupational PTSD has been more studied. However, little has been investigated regarding the variables that might exist prior to the choice of a

profession and which ones could have influenced this choice, such as personality traits (impulsivity, in particular) (12,13).

Not many personality features areas socially significant as impulsivity. Its influence is observed across a wide range of areas, including mental health and education (14). According to Moeller et al (15) impulsivity can be briefly defined "as a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or to others".

Barrat Impulsiveness Scale (BIS), in its 11th revision, is a wide-spread self-report instrument developed to evaluate the multi-dimensional construct of impulsivity. This measure comprises three subscale traits: Motor Impulsiveness (act without thinking), Non-Planning Impulsiveness (lack of foresight) and Attentional Impulsivity (inadequacy to focus attention or concentration) (14). Although most researchers recognize impulsivity as a multi-faceted construct, Netto et al (11) highlighted the huge frequency of studies using only the total score of BIS-11, neglecting the second-order subscales traits. It made the researches less precise when trying to explain individual personality differences.

According to our current knowledge there is no research population-based study that has evaluated clinical and behavioral characteristics among college students by grouping them according to their respective academic fields. Therefore, this study aimed to describe the prevalence rates of traumatic experience exposure, PTSD, impulsivity levels and its subfactors, and engagement in risky behaviors among college students from different academic

areas, enrolled in seven college institutions in Northeastern Brazil. It is hypothesized that students from different academic areas present distinct prevalence in relation to impulsivity and PTSD.

Methods

Ethical Aspects

This study is part of a research project about Brazilian college students and has been approved by the Ethics Review Board of Bahia (CEP/COM/UFBA-process number 227/2010) and Paraíba (CEP/Fac. Sta. Maria, 17-02-2011). For more detailed description of this survey, consult Netto et al (16).

Data collection

The participants were students from all the undergraduate programs offered at seven institutions in Northeastern Brazil. The inclusion criteria were the following: being 18 years of age or older; being enrolled at the first or last semester of an undergraduate program; being present in the lecture hall at the time of the data collection, and having signed the Informed Consent Term. A total of 2.589 students was enrolled at the institutions and present in the classroom. Of these, 2.213 students met the inclusion criteria and fulfilled the protocol. Three fields of study were chosen: Exact Sciences/Technology

(n=265); Health Sciences/Biology (n=508); Human Sciences/Arts (n=1.440). The Exact Sciences/Technology comprised: Computer Science, Architecture and the fields of Engineering. Medicine, Biology, Nursing, Pharmacy, Biomedicine, Physical Therapy, Dentistry and Physical Education were classified in the Health Sciences/Biology. The Human Sciences/Arts included: Education, Law, Social Services, Psychology, Business Administration, Economics, Accounting, Gastronomy and the Arts.

Measurement Instruments

The evaluation held a comprehensive structured socio-demographic questionnaire and three scales which have been broadly applied in epidemiological surveys. All of them were self-applied instruments and had been previously translated and adapted to Brazilian Portuguese.

The sociodemographic questionnaire included the following variables: gender, marital status, undergraduate major, current semester, type of institution (public or private), parents' educational level, annual family income, hometown, and parents' marital status. Age data was converted from discrete variable to two categories: up to 25 years or more than 25 years. According to Airan M. et al (4) it is firmly established in the literature that brain maturation is not completed until approximately 25 years of age. The young population is highly susceptible to easily engaging in risk-taking behaviors and not being able to regulate as a result of an immature limbic system and prefrontal cortex (4).

We investigated traumatic experiences using the Trauma History Questionnaire (THQ) (17), which is a 24-item list consisting of 23 events that could be

considered potentially traumatic and 1 item that allows subjects to report on any personal experiences that were not encompassed by the other items. The subjects were also asked about the frequency of the event and the age when it occurred. The Brazilian version of THQ has received a transcultural adaptation which is widely accepted (18). In this study, the 24-items were grouped into eight categories of questions covering crime experiences/death of others, non-sexual violences, accidents, sexual violences, man-caused disasters, natural disaster, diseases, and other traumas.

PTSD was assessed through the PTSD Checklist-civilian version (PCL-C) (19), an instrument of 17 items based on the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV). The Brazilian version of the PCL-C has received a transcultural adaptation (19,20). The adopted cut-off point for PCL-C was 45, following the optimally efficient cut-off score previously found for this population.

Impulsivity was evaluated through the BIS-11 (21), which is a self-administered scale consisting of 30 items that provides a total score of impulsivity in regard to three dimensions: attentional, motor and non-planning factors (22). This scale has been the most widely used scale for clinical assessment. Impulsivity scores were analyzed in two ways. A cut-off point was used based on previously reported limits for impulsiveness levels (14). Three groups were made – “Low impulsivity” (Scores lower then 52), “Normal impulsivity” (Scores between 52 and 71), “High impulsivity” (Scores higher than 71). Regarding the scores of impulsivity factors (attentional, motor and non-planning), there was no previous study determining a cut-off point. After using the Kolmogorov-Smirnov test and verifying the non-normality of the distribution curve of each factor, the scores

were divided into tertiles. Therefore, these quantitative variables were transformed into quality variables, establishing the following categorical groups: “Less impulsive”(1st tertile), “Moderately impulsive” (2nd tertile) and “More impulsive’ (3rd tertile).

Questions of risky behaviors, based on Rigotti et al (23) and Wechsler and Nelson (24), these questions were assessed through Yes/No questions about:

- Alcohol, tobacco and substance use
- Interpersonal consequences of alcohol consumption
- Condom use during any sexual relationship with a non-stable partner

Statistical Analyses

Statistical analysis was conducted with the Software Package For Statistics and Simulation (SPSS), version 20.0. The subjects were divided into three groups, according to academic areas: Health Sciences (including Biological Sciences), Exact Sciences (including Technological Sciences) and Human Sciences (including the Arts). Univariate analyses were performed in order to describe the frequencies of sociodemographic data: gender, age, marital status, academic performance, parent´s educational background, hometown, current semester and annual family income. Similarly, we described the rates of PTSD as well as impulsivity levels and its factors. The following data were analyzed according to impulsivity levels, using crosstabulation: frequencies of experienced stressful events; alcohol and illicit psychoactive substance use; engagement in high risk behaviors; and attending to first or last semester.

Results

Table 1 presents sociodemographic data of college students among different academic areas: Health Sciences (Medicine, Biology, Nursing, Pharmacy, Biomedicine, Physiotherapy, Dentistry and Physical Education), Exact Sciences (Computer Science, Architecture and the fields of Engineering) and Human Sciences (Education, Law, Social Services, Psychology, Business Administration, Economics, Accounting and Gastronomy).

The data were homogeneous among these three fields of study except for gender and age in the group of final semester students. Human Sciences concentrated most of the college students (65.1% =1440), as well as the highest proportion of the oldest (38.6% of Human Sciences students aged 25 years and over). Except for the group of students in the Humanities field, the majority of students in the last semester was younger than 25. Exact Sciences consisted of mostly men (55%), which didn´t occur in the other two fields (32.1% in Health Sciences and 30.6% in Human Sciences). Among the three academic fields high frequencies of single students (above 78%) were observed. Foreign students have been the majority in all of the three academic fields, and there was a balance between the rates of local and non-local students in Human Sciences (48% and 52%). Among the Exact Sciences, Health Sciences and Human Sciences there was a higher prevalence of students enrolled in the first semester (66.4%, 58.7% and 54.6%, respectively), and attending public institutions (89.4%, 64.2% and 55.5%, respectively).

<< Table 1 here>>

The study participants were surveyed about exposure to potentially traumatic events and the results were presented in accordance with global impulsivity scores of BIS-11 into each academic area (Exact Sciences, Health Sciences and Human Sciences).

Almost all the students surveyed have been exposed to at least one category of potentially traumatic events (90% and over). “To witness or receive news of death or injury of others, including family member” had the highest percentage of students exposed (at least 73%), followed by “victims of non-sexual violence” (at least 58%), regardless of the fields of study (Table 2).

Except for the “victims of natural disasters”, the other experiences were more prevalent in the high impulsivity groups of Health Sciences and Human Sciences. Among Exact Sciences students, “victims of non-sexual violence”, “victims of accidents”, “victims of man-made disasters”, “victims of natural disasters” and “victims exposed at least to one potentially traumatic event” were more prevalent within the low impulsivity group (Table 2).

Considering the category “victims of sexual violence” the difference between the proportion of students with high impulsivity in relation to those with low impulsivity was noteworthy, especially among Health Science students (Table 2).

Among the students who have experienced traumatic events, those from Human Sciences presented the higher prevalence of PTSD (14.9%). This frequency was 13.2% in Exact Sciences and 12.0% in Health Sciences.

<< Table 2 here >>

Table 3 shows the percentage of exposure to health-risk behaviors and substance use, and the results were presented in accordance with global impulsivity scores of BIS-11 into each academic area (Exact Sciences, Health Sciences and Human Sciences).

Alcohol use was the health-risk behavior whose exposure was more frequent among students of all academic areas (over 54%).Students with high impulsivity have been much more exposed to health-risk situations regardless of their field of study. Nevertheless, Human Sciences have had the largest proportion of them. Within Human Sciences and Health Sciences it is worth to highlight that the students who had high impulsivity were exposed at least three times more to most situations of risk compared to students with low impulsivity.

Only in the area of Exact Sciences the percentage of college students exposed to cigarette use, inhalants use and cocaine use was higher among those with low impulsivity than those with normal impulsivity. Moreover, this field of study exhibited unique data in the category "do something regarding to alcohol and regretting later" in which students with normal impulsivity scored more positively than those with high impulsivity (25.9% and 21.4%, respectively).

Within Health Sciences, the category “condom non-use (non-stable partners)” presented the largest proportion of students with high impulsivity (23.6%) compared to those with low impulsivity (2.7%), followed by the category “use of inhalants” (12.7% with high impulsivity and 2.7% with low impulsivity).

<< Table 3 here >>

Table 4 presented the prevalence of impulsivity levels of university students in the first and final semester in accordance with global impulsivity scores of BIS-11 into each academic area (Exact Sciences, Health Sciences and Human Sciences).

In all fields of study, there were elevated percentages of students with high impulsivity in the first semester than in the final semester. However, this difference was accentuated in the area of Exact Sciences, with a percentage of 14.8% in the first semester and 5.6% in the final semester. In both first and final semesters individuals with a greater prevalence of high impulsivity were found in the area of Human Sciences (17.7% and 16.2%, respectively).

<< Table 4 here >>

Considering the multidimensional construct of impulsivity, Table 5 described the percentages of the three dimensions of BIS-11, in accordance with academic fields.

Within all academic fields, Human Sciences presented the highest percentages of participants with greater impulsivity among all of the three subtraits (37.3% in motor impulsivity, 33.6% in attentional impulsivity, and 34.2% in non-planning impulsivity).

Exact Sciences have stood out for presenting a higher percentage of students in the group of lower attentional impulsivity and non-planning impulsivity (38.1% for both categories). This percentage was higher than in average and greater impulsivity groups. These prevalences were also higher compared with respective lower impulsivity groups in the Health and Human Sciences.

In addition, motor impulsivity was revealed as the subtrait which held the major proportion of students with greater impulsivity compared to the other components of impulsivity, regardless of the academic area (34.7% in Exact Sciences, 36.2% in Health Sciences and 37.3% in Human Sciences).

<< Table 5 here >>

Discussion

The current study presented two main results. First, the college group of Human Sciences had the major percentage of PTSD individuals. Second, and this is an interesting finding, the same group had the greatest rate of high impulsivity level. This is consistent with the literature, which associates PTSD and features of impulsivity (25,26). However, this cross-sectional study design didn´t allow the authors to analyze whether impulsivity was prior to or after PTSD. Thinking of impulsiveness as an antecedent to PTSD, it would be accountable for “acting on the spur of the moment” and less on the “ability to predict worse consequences” (14). Hence the most impulsive students also tend to be more vulnerable when exposed to a traumatic event.

It´s relevant to emphasize that Exact Sciences presented the lowest rate of high impulsivity and concurrently concentrated the highest proportion of students attending public institutions (89.4%). This current data could be explained considering that there is a very narrow bottleneck that students need to go through if they want to get into Brazil´s public undergraduate programs. This happens because the entrance exam (known as “vestibular”) for public universities is more competitive than those offered by private universities, so it requires early and continuous academic efforts.

Similar to previous researches (26,27), this study revealed that more than half of the students entering college reported a history of potentially traumatic events. One of the most prevalent types of trauma was “non-sexual violence”. In fact, there is a comprehensive literature about interpersonal violence among college students (28-30). For example, Avant et al (31) presented findings about the relation between university students, trauma and PTSD. Their work addressed psychological abuse compared to physical and sexual abuse in a small sample of students. On the other hand, Forke et al (32) investigated a wide range of relationships between male and female university students, concerning victimization and perpetration. Emotional, physical and sexual relationship violence was analyzed among 910 participants, and 51.8% declared the experience of having at least one type of interpersonal violence during college. However, in both of the studies above any analysis was made considering the uniqueness of fields of study.

Despite different academic areas, in most of the health-risk behaviors, the prevalence of students involved in these events was greater among individuals with high impulsivity, compared to those with low impulsivity. This data is

endorsed by previous findings, which described the association among impulsivity and health-risk behavior, such as alcohol use (33,34), illicit drug use (33,34) and risky sexual behavior (5,35). The greatest rates of high impulsivity presented in Human Sciences among all of the three impulsivity traits may be understood by the largest percentage of students involved with almost all risky behaviors, such as: cigarette use, inhalants use, marijuana use, condom non-use with non-stable partners, involvement in physical fighting, car accidents or other negative situations due to alcohol. Curious data were found in the Exact Sciences. It was the only field of study in which the category “do something regarding to alcohol and regretting later” was not more prevalent in the high impulsivity group. It thus may represent a high self-consciousness trait in lower and median impulsivity group of this area, which probably entails more experiences of guilt and regret, even after a mild lack of inhibition during use of alcohol (36).On the other hand, within the Exact Sciences, students with high impulsivity had a higher rate of exposition to alcohol (77.8%) and concurrently these students had less regret about behavioral changes due to alcohol (21.4%).

Among the three academic fields, the rates of high impulsivity significantly decreased between the first semester, compared to the final semester, in the Exact Sciences. Interestingly, the area of Human Sciences presented the greatest prevalence of high impulsivity, in both semesters, in relation to the other fields (17.7% and 16.2%, respectively), despite the largest proportion of students aged 25 years and over. Impulsivity does not come isolated, but rather in a cluster with other traits (37). For example, impulsivity is frequently included as a feature of neuroticism (36). Besides the tendency in response to intense

negative affect or stressful conditions (36,38), neuroticism also involves emotional reactivity and perception. Considering personality traits as a continuum (37), some neuroticism trait is needed to work with emotional perception (like in the fields of Psychology, Social Service and Education), or the expression of feelings (like in the Arts). In an adequate level, the neuroticism trait may be useful and adaptative for the practice of Human Sciences but not as needed in Exact Sciences. Hence, neuroticism was linked with disengagement and less active coping(36)and can influence the onset of PTSD (3).

Within the Health Sciences, the category “condom non-use (non-stable partners)” presented the largest proportion of students with high impulsivity compared to those with low impulsivity, followed by the category “use of inhalants”. These data may be due to the deeper understanding of the hazards involved in these situations, so it might require elevated impulsivity levels to engage in these risky behaviors.

It´s noteworthy that the Exact Sciences turned out to be the field in which students with lower impulsivity had the highest proportion in the attentional and non-planning subtraits (38% in both of these categories). No other category presented a proportion as high as this one. This holds true for the Exact Sciences as well as for the other fields. This can be understood through some specific characteristics of the Exact Sciences. In fact, it´s expected that students in this area may be skilled to supress unnecessary information held in their working memory in order to focus on tasks and to be steadier thinkers. Also, these students must have the ability to solve complex mental problems and to meet novel and unexpected mental challenges (14, 39, 40). This could be at

least one of the reasons the percentage of high impulsivity level in the Exact Sciences was much more elevated in the first semester than in the final (14.8% and 5.6%, respectively). Additionally, there is broad evidence to indicate that the university environment can be overanxious for many students, requiring an adaptation to a variety of interpersonal and academic circumstances (6,41). Considering this point of view, high attentional and non-planning impulsivity would be unfavorable in the academic setting, thus students with high impulsivity would have a tendency to dropout of classes.

The limitations of this study need to be highlighted here. Although this is a census survey, this exploratory research didn´t allow the authors to make definitive conclusions about the findings. The results presented here might be influenced by memory bias, and consequent less precise answers in the self-report questionnaires. However, avoidance is one of the common symptoms of PTSD. Therefore, self-report scales could minimize this bias. Another limitation refers to the lack of investigation of other psychiatric disorders, such as depression and anxiety. Additionally, because it is a cross-sectional study, the comparison between the first and the final semester students is limited, because the individuals in these groups are not the same.

Our research was able to map the sociodemographic characteristics, the types of potential traumas, the presence of PTSD and impulsivity levels among the fields of study. Thus, our exploration is an important first step in obtaining knowledge about characteristics of college students from each academic field.

Conclusion

This study points out that the Human Sciences present the highest rates of prevalence of PTSD and impulsivity among different academic fields. On the other hand, the Exact Sciences had more prevalence of low impulsivity students, compared with other fields. Additionally, the data indicate a higher prevalence of more impulsive students in the first semester than those in the final semester, which points out that impulsivity, as one of personality traits, could influence their persistence to remain enrolled in an undergraduate course. Under-investigated and unattended psychiatric disorders impair social and academic life of college students, as well as their performance as professionals in the near future. Thus, our data suggest that specific clinical features of each field of study, as well as ongoing health services support interventions since the first year of college need critical attention.

Moreover, previous personality factors related to profession choice, as impulsivity, may be linked with better or worse adaptation of the students to their fields of study.

In addition, this study points to the relevance of developing counseling programs during professional selection process and during college. These actions will probably help students to conclude their courses, and so reach the desired professional achievement.

References

1. Pedrelli P, Nyer M, Yeung A, Zulauf C, Wilens T. College Students: Mental health problems and treatment considerations. Acad Psychiatry. 2014;39:503-511.

2. Silveira C, Norton A, Brandão I, Roma-Torres A. Saúde mental em estudantes do ensino superior. Acta Med Port. 2011;24:247-256.

3. Javidi H, Yadollahie M. Post-traumatic Stress Disorder. The international journal of occupational and environmental medicine. 2012;3:2-9.

4. Arain M, Haque M, Johal L, et al. Maturation of the adolescent brain. Neuropsychiatric disease and treatment. 2013;9:449-461.

5. Ginley MK, Whelan JP, Meyers AW, Relyea GE, Pearlson GD. Exploring a multidimensional approach to impulsivity in predicting college student gambling. Journal of Gambling Studies. 2014;30:521-536.

6. Hunt J, Eisenberg D. Mental health problems and help-seeking behavior among college students. The Journal of adolescent health: official publication of the Society for Adolescent Medicine. 2010;46:3-10.

7. Blanco C, Okuda M, Wright C, et al. Mental health of college students and their non–college-attending peers: results from the national epidemiologic study on alcohol and related conditions. Archives of general psychiatry. 2008;65:1429-1437.

8. Eisenberg D, Gollust SE, Golberstein E, Hefner JL. Prevalence and correlates of depression, anxiety, and suicidality among university students. Am J Orthopsychiatry. 2007;77:534-542.

9. American College Health Association, et al. American College Health Association- National College Health Assessment Spring 2006 Reference Group Data Report (abridged): the American College Health Association. Journal of American College Health. 2007;55:195-206.

10. Minsky SK, Lu W, Silverstein SM, Gara M, Gottlieb JD, Mueser KT. Service use and self-reported symptoms among persons with positive PTSD screens and serious mental illness. Psychiatric services. 2015;66:845-850.

11. Netto LR, Pereira JL, Nogueira JF, et al. Impulsivity is relevant for trauma exposure and PTSD symptoms in a non-clinical population. Psychiatry research. 2016;239:204-211.

12. Fjeldheim CB, Nothling J, Pretorius K, et al. Trauma exposure, posttraumatic stress disorder and the effect of explanatory variables in paramedic trainees. BMC emergency medicine. 2014;14:11-17.

13. Skogstad M, Skorstad M, Lie A, Conradi H, Heir T, Weisæth L. Work-related post-traumatic stress disorder. Occupational medicine. 2013;63:175-182.

14. Stanford MS, Mathias CW, Dougherty DM, Lake SL, Anderson NE, Patton JH. Fifty years of the Barratt Impulsiveness Scale: An update and review. Personality and Individual Differences. 2009;47:385-395.

15. Moeller FG, Barratt ES, Dougherty DM, Schmitz JM, Swann AC. Psychiatric aspects of impulsivity. The American journal of psychiatry. 2001;158:1783-1793.

16. Netto LR, Cavalcanti-Ribeiro P, Pereira JL, et al. Clinical and socio-demographic characteristics of college students exposed to traumatic experiences: a census of seven college institutions in northeastern Brazil. PLoS One. 2013;8:e78677.

17. Green BL. Trauma history questionnaire. In: Stamm BH, Varra EM, Measurement of stress, trauma and adaptation. Lutherville: MD Sidran Press; 1996:366-369.

18. Fiszman A, Cabizuca M, Lanfredi C, Figueira I. The cross-cultural adaptation to Portuguese of the Trauma History Questionnaire to identify traumatic experiences. Revista brasileira de psiquiatria. 2005;27:63-66.

19. Berger W, Mendlowicz MV, Souza WF, Figueira I. Equivalência semântica da versão em português da Post-Traumatic Stress Disorder Checklist-Civilian Version (PCL-C) para rastreamento do transtorno de estresse pós-traumático. Rev Psiquiatr Rio Gd Sul. 2004;26:167-175.

20. Passos RB, Figueira I, Mendlowicz MV, Moraes CL, Coutinho ES. Exploratory factor analysis of the Brazilian version of the Post-Traumatic Stress Disorder Checklist: civilian version (PCL-C). Revista brasileira de psiquiatria. 2012;34:155-161.

21. Von Diemen L, Szobot CM, Kessler F, Pechansky F. Adaptation and construct validation of the Barratt Impulsiveness Scale (BIS 11) to Brazilian Portuguese for use in adolescents. Revista brasileira de psiquiatria. 2007;29:153-156.

22. Patton JH, Stanford MS, Barratt ES. Factor structure of the Barratt impulsiveness scale. Journal of clinical psychology. 1995;51:768-774.

23. Rigotti NA, Moran SE, Wechsler H. US college students' exposure to tobacco promotions: prevalence and association with tobacco use. American journal of public health. 2005;95:138-144.

24. Wechsler H, Nelson TF. What we have learned from the Harvard School of Public Health College Alcohol Study: Focusing attention on college student alcohol consumption and the environmental conditions that promote it. Journal of Studies on alcohol and Drugs. 2008;69:481-490.

25. Contractor AA, Armour C, Wang X, Forbes D, Elhai JD. The mediating role of anger in the relationship between PTSD symptoms and impulsivity. Psychological Trauma: Theory, Research, Practice, and Policy. 2015;7:138.

26. Tripp JC, McDevitt-Murphy ME, Avery ML, Bracken KL. PTSD Symptoms, Emotion Dysregulation, and Alcohol-Related Consequences Among College Students With a Trauma History. Journal of dual diagnosis. 2015;11:107-117.

27. Grasso DJ, Cohen LH, Moser JS, Hajcak G, Foa EB, Simons RF. Seeing the silver lining: potential benefits of trauma exposure in college students. Anxiety, stress, and coping. 2012;25:117-136.

28. Goldsmith RE, Chesney SA, Heath NM, Barlow MR. Emotion regulation difficulties mediate associations between betrayal trauma and symptoms of posttraumatic stress, depression, and anxiety. Journal of traumatic stress. 2013;26:376-384.

29. Smyth JM, Hockemeyer JR, Heron KE, Wonderlich SA, Pennebaker JW. Prevalence, type, disclosure, and severity of adverse life events in college students. Journal of American college health : J of ACH. 2008;57:69-76.

30. Straus MA, Ramirez IL. Gender symmetry in prevalence, severity, and chronicity of physical aggression against dating partners by university students in Mexico and USA. Aggressive behavior. 2007;33:281-290.

31. Avant EM, Swopes RM, Davis JL, Elhai JD. Psychological abuse and posttraumatic stress symptoms in college students. Journal of interpersonal violence. 2011;26:3080-3097.

32. Forke CM, Myers RK, Catallozzi M, Schwarz DF. Relationship violence among female and male college undergraduate students. Archives of pediatrics & adolescent medicine. 2008;162:634-641.

33. Canale N, Vieno A, Griffiths MD, Rubaltelli E, Santinello M. How do impulsivity traits influence problem gambling through gambling motives? The role of perceived gambling risk/benefits. Psychology of Addictive Behaviors. 2015;29:813.

34. de Almeida RMM, Trentini LB, Klein LA, Macuglia GR, Hammer C, Tesmmer M. Uso de álcool, drogas, níveis de impulsividade e agressividade em adolescentes do Rio Grande do Sul. Psico. 2014;45:65-72.

35. Stoltenberg SF, Batien BD, Birgenheir DG. Does gender moderate associations among impulsivity and health-risk behaviors? Addictive behaviors. 2008;33(2):252-65.

36. Ireland ME, Hepler J, Li H, Albarracin D. Neuroticism and attitudes toward action in 19 countries. Journal of personality. 2015;83:243-250.

37. Whiteside SP, Lynam DR. The Five Factor Model and impulsivity: using a structural model of personality to understand impulsivity. Personality and Individual Differences. 2001;30:669-689.

38. Valero S, Daigre C, Rodriguez-Cintas L, et al. Neuroticism and impulsivity: their hierarchical organization in the personality characterization of drug-dependent patients from a decision tree learning perspective. Comprehensive psychiatry. 2014;55:1227-1233.

39. Malloy-Diniz L, Fuentes D, Leite WB, Correa H, Bechara A. Impulsive behavior in adults with attention deficit/ hyperactivity disorder: characterization of attentional, motor and cognitive impulsiveness. Journal of the International Neuropsychological Society: JINS. 2007;13:693-698.

40. Diamond A. Executive functions. Annual review of psychology. 2013;64:135-168.

41. Baker SR. Intrinsic, extrinsic, and amotivational orientations: Their role in university adjustment, stress, well-being, and subsequent academic performance. Current Psychology. 2004;23:189-202.

ANEXOS – ARTIGO 2

Table 1. Sociodemographic characteristics of college students according to academic areas in Northeastern Brazil

		Exact Sciences N = 265	Health Sciences N = 508	Human Sciences N = 1440
Sociodemographic variables		**N (%)**	**N (%)**	**N (%)**
Gender	Female	117 (45.0)	332 (67.9)	963 (69.4)
	Male	143 (55.0)	157 (32.1)	425 (30.6)
Age in first semester	< 25 years	133 (75.6)	249 (83.6)	578 (73.5)
	≥ 25 years	43 (24.4)	49 (16.4)	208 (26.5)
Age in final semester	< 25 years	56 (62.9)	157 (74.8)	306 (46.8)
	≥ 25 years	33 (37.1)	53 (25.2)	348 (53.2)
Marital status	Single	230 (87.4)	455 (91.0)	1104 (78.9)
	Married	32 (12.2)	41 (8.2)	269 (19.2)
	Divorced	1 (0.4)	3 (0.6)	23 (1.6)
	Widowed	-----	1 (0.2)	4 (0.3)
Hometown	Local	86 (35.8)	145 (31.6)	613 (48.0)
	Non-local	154 (64.2)	314 (68.4)	663 (52.0)
Semester	First	176 (66.4)	298 (58.7)	786 (54.6)
	Final	89 (33.6)	210 (41.3)	654 (45.4)
Type of Institution	Public	237 (89.4)	326 (64.2)	799 (55.5)
	Private	28 (10.6)	182 (35.8)	641 (44.5)
Annual family income*	A + B	62 (24.4)	107 (21.6)	215 (16.3)
	C	91 (35.8)	174 (35.2)	427 (32.3)
	D + E	101 (39.8)	214 (43.2)	679 (51.4)
Father´s education level	None	10 (3.8)	9 (1.8)	68 (4.8)
	Elementary	219 (83.3)	407 (82.4)	1116 (79.4)
	College or Postgraduate	34 (12.9)	78 (15.8)	223 (15.8)
Mother´s education level	None	8 (3.0)	6 (1.2)	51 (3.6)
	Elementary	201 (76.5)	358 (72.0)	1057 (75.2)
	College or Postgraduate	54 (20.5)	133 (26.8)	298 (21.2)
Parent´s marital status	Married	175 (71.4)	335 (69.2)	1049 (76.4)
	Divorced	70 (28.6)	149 (30.8)	324 (23.6)

* The classification of annual family income is the adopted standard in Brazil, through the Economic Classification Criterion of Brazil (2011): Class A+B ≥ $25.356,00 / $25.356,00 > Class C ≥ $5.136,00 / $5.136,00 > Class D+E ≥ $2.208,00 (values in dollar).

Table 2. Prevalence of exposure to potentially traumatic events according to fields of study and impulsivity levels of college students in Northeastern Brazil

Impulsivity	Exact Sciences N = 265			Health Sciences N = 508			Human Sciences N = 1440		
	Impulsivity levels - N (%)			Impulsivity levels - N (%)			Impulsivity levels - N (%)		
	low	normal	high	low	normal	high	low	normal	high
	41(15.5)	193 (72.8)	31(11.7)	74(14.6)	361(71.1)	73(14.4)	196(13.6)	999(69.4)	245(17.0)
Categories of potentially traumatic events									
To witness or receive news of death or injury of others, including family member	34(82.9)	155(80.3)	28(90.3)	62(83.8)	309(85.6)	66(90.4)	144(73.5)	804(80.5)	206(84.1)
Victims of non-sexual violence	32(78.0)	112(58.0)	21(67.7)	44(59.5)	236(65.4)	51(69.9)	124(63.3)	623(62.4)	171(69.8)
Victims of accidents	15(36.6)	51(26.4)	10(32.3)	15(20.3)	107(29.6)	26(35.6)	44(22.4)	273(27.3)	66(26.9)
Victims of man-made disaster	7(17.1)	20(10.4)	5(16.1)	7(9.5)	43(11.9)	9(12.3)	22(11.2)	90(9.0)	34(13.9)
Victims of other traumas	5(12.2)	22(11.4)	4(12.9)	7(9.5)	35(9.7)	9(12.3)	17(8.7)	104(10.4)	29(11.8)
Victims of disease	3(7.3)	18(9.3)	4(12.9)	5(6.8)	27(7.5)	7(9.6)	20(10.2)	113(11.3)	31(12.7)
Victims of sexual violence	3(7.3)	15(7.8)	4(12.9)	3(4.1)	33(9.1)	10(13.7)	14(7.1)	94(9.4)	32(13.1)
Victims of natural disaster	3(7.3)	21(10.9)	----	2(2.7)	16(4.4)	4(5.5)	16(8.2)	57(5.7)	18(7.3)
Victims of at least one of the categories above	40(97.6)	177(91.7)	29(93.5)	70(94.6)	341(94.5)	71(97.3)	177(90.3)	910(91.1)	234(95.5)

Percentage over the total of respective impulsivity level
There were no missing data

Table 3. Prevalence of exposure to health-risk behaviors according to impulsivity levels of college students among different fields of study in Northeastern Brazil.

Impulsivity	Exact Sciences N = 265			Health Sciences N = 508			Human Sciences N = 1440		
	impulsivity levels - N (%)			impulsivity levels - N (%)			impulsivity levels - N (%)		
	low	normal	high	low	normal	high	low	normal	high
	41(15.5)	193 (72.8)	31(11.7)	74(14.6)	361(71.1)	73(14.4)	196(13.6)	999(69.4)	245(17.0)
Exposure to health-risk behaviors									
Alcohol Use	20(54.1)	122(67.8)	21(77.8)	38(58.5)	214(64.8)	50(80.6)	87(49.2)	568(62.8)	170(78.7)
Cigarette Use	4(9.8)	18(9.5)	4(13.8)	5(6.8)	33(9.2)	10(13.9)	6(3.1)	122(12.3)	48(20.1)
Inhalants Use	2(4.9)	12(6.3)	3(10.0)	2(2.7)	17(4.7)	9(12.7)	2(1.0)	76(7.7)	42(17.4)
Marijuana Use	2(5.0)	4(2.1)	2(6.7)	2(2.7)	10(2.8)	3(4.1)	3(1.5)	54(5.4)	32(13.2)
Ecstasy/LSD Use	----	1(0.5)	1(3.3)	----	1(0.3)	----	1(0.5)	15(1.5)	11(4.5)
Cocaine Use	1(2.4)	2(1.0)	3(9.7)	----	2(0.6)	----	2(1.0)	19(1.9)	19(7.8)
Crack Use	----	1(0.5)	1(3.2)	----	----	----	----	1(0.1)	----
Do something due to Alcohol and regretting later	7(17.1)	49(25.9)	6(21.4)	10 (13.7)	76(21.9)	26(38.2)	27(14.1)	227(23.6)	92(41.3)
Involvement in physical fighting, car accident or other negative situations due to	2(4.9)	16(8.4)	3(9.7)	----	19(5.3)	7(9.9)	4(2.1)	60(6.1)	39(16.2)
Condom non-use (non-stable partners)	5(12.2)	40(20.7)	7(22.6)	2(2.7)	49(14.0)	17(23.9)	15(8.0)	159(16.1)	69(28.4)

Percentage over the total of respective impulsivity level.
In order to calculate the percentages, missing data were excluded.

Table 4. Prevalence of impulsivity levels of college students according to fields of study and current semester in Northeastern Brazil

	Exact Sciences N = 265		Health Sciences N = 508		Human Sciences N = 1440	
	N (%)		N (%)		N (%)	
	Semester		Semester		Semester	
Impulsivity levels	**First**	**Final**	**First**	**Final**	**First**	**Final**
High impulsivity	26 (14.8)	5 (5.6)	48 (16.1)	25 (11.9)	139 (17.7)	106 (16.2)
Normal impulsivity	127 (72.1)	66 (74.2)	211 (70.8)	150 (71.4)	539 (68.6)	460 (70.3)
Low impulsivity	23 (13.1)	18 (20.2)	39 (13.1)	35 (16.7)	108 (13.7)	88 (13.5)

Table 5. Prevalence of impulsivity subtraits of college students according to fields of study in Northeastern Brazil

Impulsivity subtraits	Exact Sciences N = 265			Health Sciences N = 508			Human Sciences N = 1440		
	Impulsivity (in tertiles) - N (%)			Impulsivity (in tertiles) - N (%)			Impulsivity (in tertiles) - N (%)		
	lower	average	greater	lower	average	greater	lower	average	greater
Motor Impulsivity	85(32.1)	88(33.2)	92(34.7)	163(32.1)	161(31.7)	184(36.2)	474(32.9)	429(29.8)	537(37.3)
Attentional Impulsivity	101(38.1)	89(33.6)	75(28.3)	175(34.4)	172(33.9)	161(31.7)	461(32.0)	495(34.4)	484(33.6)
Non-planning Impulsivity	101(38.1)	90(34.0)	74(27.9)	172(33.9)	172(33.9)	164(32.2)	431(29.9)	516(35.9)	493(34.2)

4 DISCUSSÃO

Os resultados do estudo original (artigo 2) apontam que estudantes universitários de diferentes áreas acadêmicas divergem em relação a determinadas características clínicas e comportamentais. Exposição a eventos potencialmente traumáticos, presença de TEPT, níveis de impulsividade, uso de álcool e/ou substâncias psicoativas e engajamento em comportamento de risco à saúde apresentaram prevalências distintas entre os três campos de estudo.

Estudantes com níveis altos de impulsividade apresentam maiores prevalências quanto à exposição a eventos potencialmente traumáticos, engajamento em comportamentos de risco e ao uso de substâncias lícitas e ilícitas. Esses dados corroboram com os achados da revisão de literatura (artigo 1), os quais indicam uma associação entre facetas de personalidade e comportamentos mal-adaptativos. Embora o estudo original tenha analisado apenas a impulsividade, este traço constitui-se em um dos mais importantes traços de personalidade.

A área de Ciências Humanas desponta como aquela que concentra, não só o maior percentual de TEPT entre os estudantes universitários, como também o maior percentual de indivíduos com alta de impulsividade. Esses dados sugerem a importância da implementação de serviços de saúde voltados para a população universitária, e a necessidade de um serviço que esteja preparado para atender às demandas específicas dos estudantes de diferentes áreas de conhecimento.

Considerando as limitações deste estudo, as conclusões a partir dos dados devem ser feitas com cautela. Importante ressaltar que não foi possível determinar se a impulsividade, considerada uma das mais importantes dimensões da personalidade, determina a escolha da profissão ou facilita a permanência dos estudantes em sua área de estudo, uma vez que não foi realizado acompanhamento longitudinal. Ademais, os resultados podem ter

sido influenciados pelo viés de memória, o que comprometeria a acurácia dos dados. Outra limitação refere-se à falta de avaliação de outros transtornos psiquiátricos, como depressão e ansiedade, o que também poderia influenciar os resultados obtidos. Adicionalmente, por se tratar de um estudo de corte transversal, os estudantes do primeiro e do último semestre teórico não são os mesmos, e por isso as comparações são limitadas.

Ainda não estão claros os fatores intrínsecos ao indivíduo que contribuem para a escolha profissional e permanência no curso. Pesquisas futuras devem fazer uma avaliação mais abrangente de características de personalidade e de variáveis ambientais (competitividade, carga horária, suporte acadêmico, suporte social) que possam influenciar nas diferentes áreas de estudo.

Seria interessante que estudos futuros investiguem quais traços de personalidade se correlacionam com melhor ou pior adaptação ao trabalho e desempenho funcional.

Os dados resultantes da revisão de literatura, em conjunto com aqueles obtidos no trabalho original, revelam a necessidade de que as instituições de ensino superior promovam investimentos nas áreas de prevenção e tratamento da saúde mental de seus estudantes, disponibilizando e divulgando entre as comunidades docente e discente, a importância do acompanhamento médico-psicológico ao longo de toda a jornada acadêmica. Na medida em que a saúde mental é a base para o bem-estar e sucesso acadêmico dos alunos, as instituições de ensino superior têm claramente um incentivo para promover essa agenda.

5 CONSIDERAÇÕES FINAIS

A revisão de literatura apresenta dados interessantes acerca da associação entre características individuais de personalidade e diferentes tipos de comportamentos disfuncionais. Dentre os artigos revisados, apenas um investigou personalidade como preditor de desempenho em uma tarefa para medir “tomada de decisão”, não encontrando associação. Os demais trabalhos investigaram associação entre personalidade e comportamentos mal-adaptativos (vício em internet, ansiedade social, transtornos alimentares, uso de álcool e baixa tolerância ao sofrimento), e os resultados indicaram associação entre facetas de personalidade e tais comportamentos. Destaca-se o domínio Neuroticismo como fator de personalidade cuja associação com comportamentos mal-adaptativos se fez presente na maioria dos estudos.

Os resultados do artigo original sugerem que estudantes universitários de diferentes áreas acadêmicas apresentam características distintas quanto à prevalência de exposição a eventos potencialmente traumáticos, presença de TEPT, níveis de impulsividade e engajamento em comportamentos de risco.

A maioria dos estudantes relatou exposição à categoria “vítimas de violência não-sexual”, independente da área acadêmica a que estavam vinculados. Entre os estudantes que se expuseram a experiências potencialmente traumáticas, aqueles lotados na área de Ciências Humanas apresentaram maior prevalência de TEPT (14.9%) e de alta impulsividade (17%).

A maioria dos comportamentos de risco foi apresentou maior prevalência entre estudantes com alta impulsividade, independente da área de estudo.

Nas três áreas acadêmicas houve maior prevalência de estudantes com alta impulsividade no primeiro primeiro semestre, do que no último semestre. Entretanto, essa diferença foi acentuada na área de Ciências Exatas.

REFERÊNCIAS

1. Pedrelli P, Nyer M, Yeung A, Zulauf C, Wilens T. College Students: Mental health problems and treatment considerations. Acad Psychiatry. 2014;39:503-511.

2. Silveira C, Norton A, Brandão I, Roma-Torres A. Saúde mental em estudantes do ensino superior. Acta Med Port. 2011;24:247-256.

3. Arain M, Haque M, Johal L, et al. Maturation of the adolescent brain. Neuropsychiatric disease and treatment. 2013;9:449-461.

4. Blanco C, Okuda M, Wright C, et al. Mental health of college students and their non–college-attending peers: results from the national epidemiologic study on alcohol and related conditions. Archives of general psychiatry. 2008;65:1429-1437.

5. Minsky SK, Lu W, Silverstein SM, Gara M, Gottlieb JD, Mueser KT. Service use and self-reported symptoms among persons with positive PTSD screens and serious mental illness. Psychiatric services. 2015;66:845-850.

6. Fjeldheim CB, Nothling J, Pretorius K, et al. Trauma exposure, posttraumatic stress disorder and the effect of explanatory variables in paramedic trainees. BMC emergency medicine. 2014;14:11-17.

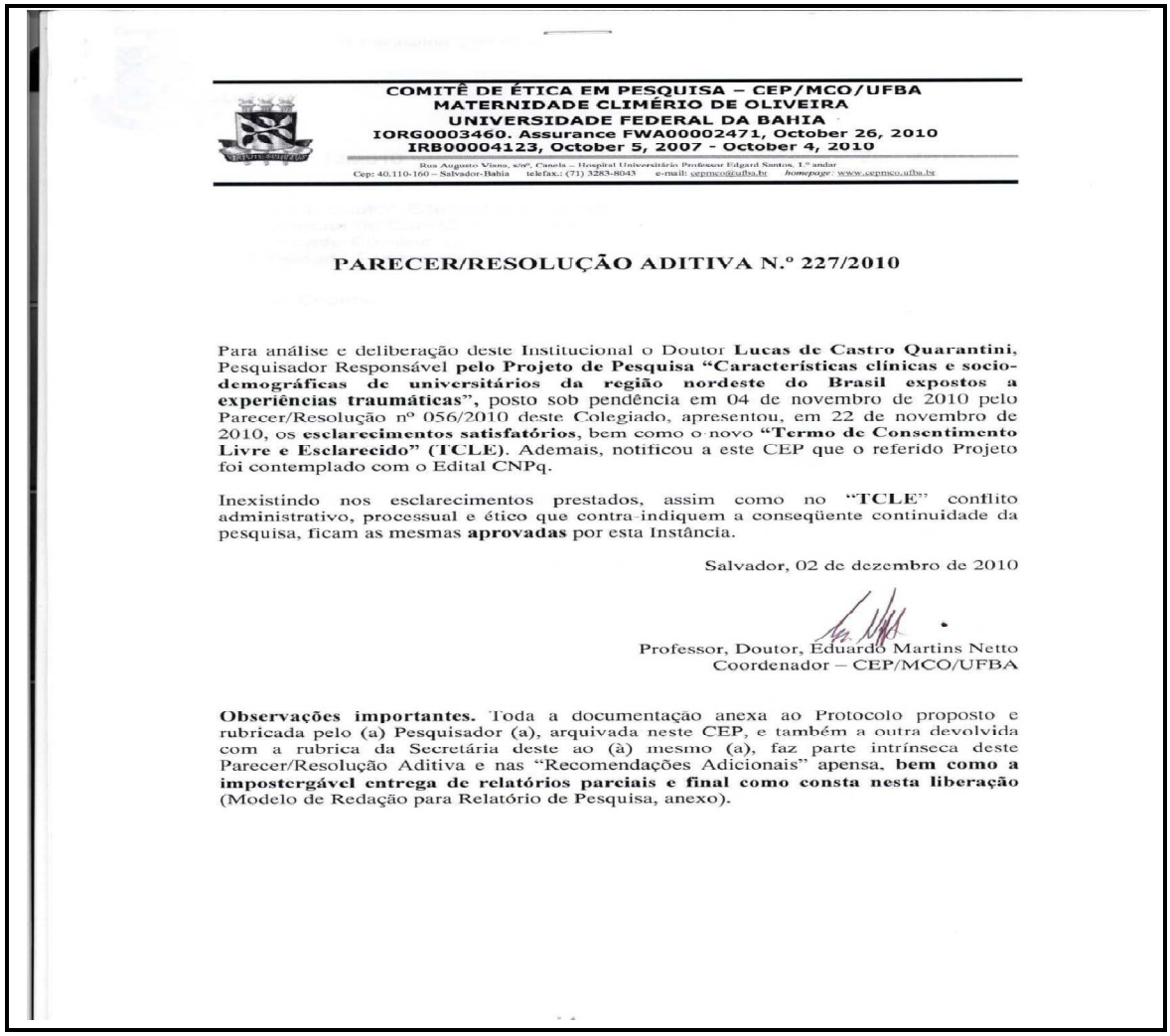
7. Skogstad M, Skorstad M, Lie A, Conradi H, Heir T, Weisæth L. Work-related post-traumatic stress disorder. Occupational medicine. 2013;63:175-182.

8. Netto LR, Pereira JL, Nogueira JF, et al. Impulsivity is relevant for trauma exposure and PTSD symptoms in a non-clinical population. Psychiatry research. 2016;239:204-211.

9. Netto LR, Cavalcanti-Ribeiro P, Pereira JL, et al. Clinical and socio-demographic characteristics of college students exposed to traumatic experiences: a census of seven college institutions in northeastern Brazil. PLoS One. 2013;8:e78677.

ANEXOS

Anexo A – Parecer do Comitê de Ética Com-HUPES



COMITÊ DE ÉTICA EM PESQUISA – CEP/MCO/UFBA
MATERNIDADE CLIMÉRIO DE OLIVEIRA
UNIVERSIDADE FEDERAL DA BAHIA
IORG0003460. Assurance FWA00002471, October 26, 2010
IRB00004123, October 5, 2007 - October 4, 2010

Rua Augusto Viana, s/nº, Canela – Hospital Universitário Professor Edgard Santos, 1.º andar
Cep: 40.110-160 – Salvador-Bahia telefax.: (71) 3283-8043 e-mail: cepmco@ufba.br *homepage*: www.cepmco.ufba.br

PARECER/RESOLUÇÃO ADITIVA N.º 227/2010

Para análise e deliberação deste Institucional o Doutor **Lucas de Castro Quarantini**, Pesquisador Responsável **pelo Projeto de Pesquisa "Características clínicas e socio-demográficas de universitários da região nordeste do Brasil expostos a experiências traumáticas"**, posto sob pendência em 04 de novembro de 2010 pelo Parecer/Resolução nº 056/2010 deste Colegiado, apresentou, em 22 de novembro de 2010, os **esclarecimentos satisfatórios**, bem como o novo **"Termo de Consentimento Livre e Esclarecido" (TCLE)**. Ademais, notificou a este CEP que o referido Projeto foi contemplado com o Edital CNPq.

Inexistindo nos esclarecimentos prestados, assim como no "**TCLE**" conflito administrativo, processual e ético que contra-indiquem a conseqüente continuidade da pesquisa, ficam as mesmas **aprovadas** por esta Instância.

Salvador, 02 de dezembro de 2010

Professor, Doutor, Eduardo Martins Netto
Coordenador – CEP/MCO/UFBA

Observações importantes. Toda a documentação anexa ao Protocolo proposto e rubricada pelo (a) Pesquisador (a), arquivada neste CEP, e também a outra devolvida com a rubrica da Secretária deste ao (à) mesmo (a), faz parte intrínseca deste Parecer/Resolução Aditiva e nas "Recomendações Adicionais" apensa, **bem como a impostergável entrega de relatórios parciais e final como consta nesta liberação** (Modelo de Redação para Relatório de Pesquisa, anexo).

Anexo B – Parecer do Comitê de Ética da Faculdade Santa Maria

FACULDADE SANTA MARIA
COMITÊ DE ÉTICA EM PESQUISA
BR 230, KM 504, Cristo Rei, CEP 58900-000
Cajazeiras – PB

CERTIDÃO

Certificamos que o Projeto de Pesquisa intitulado *Características clínicas e sóciodemográficas de estudantes universitários da região Nordeste do Brasil expostos a experiências traumáticas*, do pesquisador Lucas de Castro Quarantini, foi aprovado, em reunião realizada no dia 16 de fevereiro de 2011, pelo Comitê de Ética em Pesquisa da Faculdade Santa Maria.

Cajazeiras – PB, 17 de fevereiro de 2011

Joselito Santos
Coord. do Comitê de Ética em Pesquisa

Anexo C – Termo de Consentimento Livre e Esclarecido

UFBA

UNIVERSIDADE FEDERAL DA BAHIA
CURSO DE PÓS-GRADUAÇÃO EM MEDICINA E SAÚDE
Rua Augusto Viana, s/nº , 5º andar, Canela Cep.: 40110-160 Salvador, Bahia

COLABORADORES
RUY BARBOSA
UEFS
Universidade Federal de Campina Grande

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

CARACTERÍSTICAS CLÍNICAS E SOCIO-DEMOGRÁFICAS DE UNIVERSITÁRIOS DA REGIÃO NORDESTE DO BRASIL EXPOSTOS A EXPERIÊNCIAS TRAUMÁTICAS

Você está sendo convidado (a) a participar como voluntário em uma pesquisa que avalia a exposição a eventos traumáticos em estudantes universitários. Após ser esclarecido(a) sobre as informações a seguir, no caso de aceitar fazer parte do estudo, assine ao final deste documento, que está em duas vias. Uma delas é sua e a outra é do pesquisador responsável. Em caso de recusa você não será penalizado(a) de forma alguma e pode desistir a qualquer momento.

1. Qual o objetivo desta pesquisa?

Investigar uma possível mediação da impulsividade e dos fatores de resiliência entre a exposição a eventos traumáticos e o desenvolvimento de estresse pós-traumático, bem como a sua influência no rendimento acadêmico de estudantes universitários da Região Nordeste do Brasil.

2. Quais os critérios para participar?

Você deve ter idade igual ou maior que 18 anos e precisa ser aluno matriculado em um curso de graduação desta Instituição.

3. O que acontecerá neste estudo?

A avaliação citada acima será realizada através da aplicação de questionários auto-aplicáveis com duração aproximada de 20 minutos. A mesma será entregue a você e, depois de respondida, deverá ser devolvida e lacrada em um envelope, sem identificação.

4. Quais as implicações em participar deste estudo?

Este Projeto não oferece qualquer tipo de risco para os participantes. A sua colaboração neste estudo poderá proporcionar, no âmbito pessoal e no âmbito coletivo, a compreensão das vivências traumáticas no ser humano, permitindo benefícios futuros para si e para as outras pessoas.

Se posteriormente você desejar receber um atendimento clínico com base nas questões tratadas nos questionários, você pode recorrer a um dos endereços descritos ao final deste termo. Todas as instituições abaixo listadas integram o Sistema Único de Saúde e, portanto, garantem a gratuidade do atendimento clínico, respeitando, contudo, regras e disponibilidade interna.

5. Quais os inconvenientes em participar deste estudo?

Este projeto não acarretará gastos para você, nem haverá qualquer tipo de benefício financeiro para que você participe dele. Os Pesquisadores envolvidos também não serão remunerados.

6. Quais as garantias ao participar deste Estudo?

Suas informações serão tratadas confidencialmente e o consentimento, contendo seu nome, será arquivado de maneira independente dos seus dados gerais. Os resultados deste estudo poderão ser enviados para publicação em jornais científicos, mas você não será identificado por nome.

7. Esclarecimentos.

Em caso de dúvidas você pode falar com qualquer um dos Pesquisadores: Juliana Laranjeira, Liana Netto e Lucas Quarantini no Ambulatório Magalhães Neto, anexo do Complexo Hospitalar Universitário Professor Edgard Santos pelo tel.: (71) 3283-8381, todas as segundas-feiras, à tarde. Se houver duvidas quanto aos seus direitos como participante, você deve contatar o Coordenador do Comitê de Ética em Pesquisa da Maternidade Climério de Oliveira pelo tel.: (71) 3283-8043 ou no endereço: Rua Augusto Viana, s/nº, no 1º andar do Complexo Hospitalar Universitário Professor Edgard Santos.

CONSENTIMENTO

Eu (nome completo) _____,
RG _____, abaixo assinado, maior de 18 anos, concordo em participar do presente estudo como sujeito. Fui devidamente informado e esclarecido pelo Pesquisador _____ sobre a pesquisa e os procedimentos nela envolvidos.

Assinatura do participante:_____
Local e data:_____

Assinatura do Pesquisador:_____
Local e data:_____

Instituições e Serviços públicos de Saúde Mental:

Águas Claras	CAPS II	(71) 3395-1876 3309-9641
Rio Vermelho	CAPS II	(71) 3611-3916
Eng. Velho de Brotas	CAPS II	(71) 3611-2956 3611-2952
Caminho de Areia	CAPS II	(71) 3611-6584 3611-6585
Alto de Coutos	CAPS I	(71) 3521- 4706 3521-4707
Hosp Universitário Prof. Edgard Santos	CAPSad	(71) 3283-8381
Pernambués	CAPS	(71) 3116-4699 3116-4617
Feira de Santana	CAPSad	(75) 3614-6595 (75) 3625-3378

Anexo D – Questionários/Escalas utilizadas nas pesquisas

D.1 - Questionário Sociodemográfico

1 - Cidade onde morava antes de entrar na faculdade: UF:
2 - Data de nascimento: _____/_____/_____ *3 - Sexo:* ( ) Feminino ( ) Masculino
4 - Estado civil: ( ) Solteiro(a) ( ) Casado(a) ( ) Divorciado(a) ( ) Viúvo(a)
5 - Curso para o qual foi aprovado: *6 - Semestre que está cursando:*
7 - Qual sua classificação neste vestibular?
8 - Repetiu algum ano durante a escola? ( )Não ( )Sin *Se sim, quantas vezes?*
9 - Nível educacional dos pais: Pai: ( )1º Grau ( )2º Grau ( )Graduado ( )Pós-graduado
Mãe: ( )1º Grau ( )2º Grau ( )Graduado ( )Pós-graduado
10 - Qual o valor que mais se ( )+R$ 13.680,00 ( )R$ 8.930,00 ( )R$ 4.408,00 ( )R$ 912,00
aproxima da sua renda familiar? ( )R$ 608,00 ( )R$ 342,00 ( )não sei/ não quero informar
11 - Seus pais são separados? ( ) Não ( ) Sim *Em caso afirmativo, há quanto tempo?*
12 - No seu curso de graduação, qual sua média de notas recebida no semestre anterior?
Obs: O mais aproximado possível.
( )0 ( )1 ( )2 ( )3 ( )4 ( )5 ( )6 ( )7 ( )8 ( )9 ( )10 ( )Não se aplica

D.2 - *Barratt Impulsiveness Scale* (BIS-11)

AS PERGUNTAS A SEGUIR (13 A 42) REFEREM-SE ÀS FORMAS DE AGIR E PENSAR. NÃO EXISTE RESPOSTA CERTA OU ERRADA, POIS CADA PESSOA TEM SUAS PRÓPRIAS MANEIRAS. MARQUE APENAS UMA ALTERNATIVA PARA CADA QUESTÃO: AQUELA QUE ESTIVER MAIS FORTE EM SEU PENSAMENTO.

FORMAS DE AGIR E PENSAR	*Raramente/ nunca*	*Às vezes*	*Frequen-temente*	*Sempre ou quase sempre*
13 - Eu planejo tarefas cuidadosamente	( )	( )	( )	( )
14 - Eu faço coisas sem pensar	( )	( )	( )	( )
15 - Eu tomo decisões rapidamente	( )	( )	( )	( )
16 - Eu sou despreocupado (confio na sorte, "desencanado")	( )	( )	( )	( )
17 - Eu não presto atenção	( )	( )	( )	( )
18 - Eu tenho pensamentos que se atropelam	( )	( )	( )	( )
19 - Eu planejo viagens com bastante antecedência	( )	( )	( )	( )
20 - Eu tenho autocontrole	( )	( )	( )	( )
21 - Eu me concentro facilmente	( )	( )	( )	( )
22 - Eu economizo (poupo) regularmente	( )	( )	( )	( )
23 - Eu fico me contorcendo na cadeira em peças de teatro ou palestras	( )	( )	( )	( )
24 - Eu penso nas coisas com cuidado	( )	( )	( )	( )
25 - Eu faço planos para me manter no emprego (eu cuido para não perder meu emprego)	( )	( )	( )	( )
26 - Eu falo coisas sem pensar	( )	( )	( )	( )
27 - Eu gosto de pensar em problemas complexos	( )	( )	( )	( )
28 - Eu troco de emprego	( )	( )	( )	( )
29 - Eu ajo por impulso	( )	( )	( )	( )
30 - Eu fico entediado com facilidade quando estou resolvendo problemas mentalmente	( )	( )	( )	( )
31 - Eu ajo no "calor" do momento	( )	( )	( )	( )
32 - Eu mantenho a linha de raciocínio ("não perco o fio da meada"	( )	( )	( )	( )
33 - Eu troco de casa (residência)	( )	( )	( )	( )
34 - Eu compro coisas por impulso	( )	( )	( )	( )
35 - Eu só consigo pensar em uma coisa de cada vez	( )	( )	( )	( )
36 - Eu troco de interesses e passatempos ("hobby")	( )	( )	( )	( )
37 - Eu gasto ou compro a prestação mais do que ganho	( )	( )	( )	( )
38 - Enquanto estou pensando em uma coisa, é comum que outras idéias me venham à cabeça ou ao mesmo tempo	( )	( )	( )	( )
39 - Eu tenho mais interesse no presente do que no futuro	( )	( )	( )	( )
40 - Eu me sinto inquieto em palestras ou aulas	( )	( )	( )	( )
41 - Eu gosto de jogos e desafios mentais	( )	( )	( )	( )
42 - Eu me preparo para o futuro	( )	( )	( )	( )

D.3 - *Trauma History Questionnaire* (THQ)

A SÉRIE DE PERGUNTAS A SEGUIR (43 A 66) DIZ RESPEITO A EVENTOS GRAVES OU TRAUMÁTICOS DURANTE A VIDA. PARA CADA EVENTO QUE VOCÊ RESPONDER "SIM", POR FAVOR, PREENCHA OS QUADROS À DIREITA. LEMBRE-SE: SE NÃO TIVER CERTEZA DE ALGUMA RESPOSTA, RESPONDA O MAIS APROXIMADAMENTE POSSÍVEL.

EVENTOS RELACIONADOS A CRIME		***Em caso afirmativo***	
		nº de vezes	***Idade Aproximada***
43 - Alguém já tentou tirar alguma coisa diretamente de você usando força ou ameaça de força, tal como assalto a mão armada ou furto?	***Não Sim*** ( ) ( )		
44 - Alguém já tentou roubá-lo (a) ou de fato o (a) roubou (i.e. furtou seus objetos pessoais)?	***Não Sim*** ( ) ( )		
45 - Alguém já tentou invadir ou de fato invadiu sua casa quando você **não estava** lá?	***Não Sim*** ( ) ( )		
46 - Alguém já tentou invadir ou de fato invadiu sua casa enquanto você **estava** lá?	***Não Sim*** ( ) ( )		

DESASTRES EM GERAL E TRAUMA		***Em caso afirmativo***		
		especificar	***nº de vezes***	***Idade Aproximada***
47 - Você já sofreu algum acidente grave no trabalho, num carro ou em qualquer outro lugar?	***Não Sim*** ( ) ( )	acidente:		
48 - você já passou por algum desastre natural, do tipo deslizamento de terra, enchente, tempestade, terremoto, etc., durante o qual você ou pessoas queridas corriam perigo de vida ou ferimento?	***Não Sim*** ( ) ( )	desastre:		
49 - Você já passou por algum desastre causado pelo homem, tal como choque de um trem, desmoronamento de um prédio, assalto a banco, incêndio, etc., durante o qual você percebeu que você ou pessoas queridas corriam perigo de vida ou ferimento?	***Não Sim*** ( ) ( )	desastre:		
50 - Você já foi exposto(a) a radioatividade ou a agentes químicos perigosos que pudessem ameaçar a sua saúde?	***Não Sim*** ( ) ( )	tipo:		
51 - Você já esteve em qualquer outra situação na qual você foi gravemente ferido(a)?	***Não Sim*** ( ) ( )	tipo:		

DESASTRES EM GERAL E TRAUMA		***Em caso afirmativo***		
		especificar	***nº de vezes***	***Idade Aproximada***
52 - Você já esteve em qualquer outra situação na qual você teve medo porque poderia ter sido morto(a) ou gravemente ferido(a)?	***Não Sim*** ( ) ( )	tipo:		
53 - Você já viu alguém ser gravemente machucado ou morto?	***Não Sim*** ( ) ( )	quem:		
54 - Você já viu cadáveres (excluindo em funerais) ou teve que tocar em cadáveres por qualquer motivo?	***Não Sim*** ( ) ( )	quem:		

DESASTRES EM GERAL E TRAUMA		***Em caso afirmativo***		
		especificar	***nº de vezes***	***Idade Aproximada***
55 - Você já teve algum amigo próximo ou membro da sua família assassinado ou morto por um motorista bêbado?	***Não Sim*** ( ) ( )	quem:		
56 - Você já perdeu (por morte) um cônjuge, companheiro(a) (namorado(a) ou filh(a)?	***Não Sim*** ( ) ( )	quem:		
57 - Você já sofreu de uma doença grave ou que pusesse em risco sua vida?	***Não Sim*** ( ) ( )	qual:		
58 - Você já recebeu a notícia de que alguém próximo a você foi gravemente ferido, teve doença que ameaçou a vida ou morreu de forma inesperada?	***Não Sim*** ( ) ( )	quem:		
59 - Você já teve que tomar parte num combate quando estava no serviço militar num território de guerra oficial ou não oficial?	***Não Sim*** ( ) ( )	tipo:		

EXPERIÊNCIAS FÍSICAS E SEXUAIS		Em caso afirmativo			
		Quem foi a pessoa? (ex.abaixo)	Esta experiência repetiu-se?	Quantas vezes	Idade(s) Aproxim.(s)
60 - Alguém já o(a) abrigou a ter relações sexuais ou sexo anal ou oral contra a sua vontade?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____
61 - Alguém já tocou em partes íntimas do seu corpo ou o(a) obrigou a tocar nas dele(a), sob força ou ameaça?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____
62 - Além dos incidentes mencionados nas questões 60 e 61, já houve outras situações nas quais outra pessoa tentou forçá-lo(a) a ter contato sexual contra a sua vontade?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____
63 - Alguém, incluindo membros da sua família ou amigos, já o(a) atacou usando um revólver, uma faca ou qualquer outra arma?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____
64 - Alguém, incluindo membros da sua família ou amigos, já o(a) atacou desarmado e o(a) feriu gravemente?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____
65 - Alguém da sua família já lhe bateu, espancou ou empurrou com força suficiente para causar ferimento?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____

(**Quem foi a pessoa?** Exemplo: estranho, amigo, parente, pai ou mãe, irmão ou outro)

OUTROS EVENTOS		Em caso afirmativo			
		Qual o tipo de evento?	Esta experiência repetiu-se?	Quantas vezes	Idade(s) Aproxim.(s)
66 - Você já passou por alguma outra situação ou evento extraordinariamente traumáticos que não foram abordados nas questões acima?	Não Sim ( ) ( )		Não Sim ( ) ( )	_____	_____

D.4 – *Posttraumatic Stress Disorder CheckList – civilian version* (PCL-C)

DENTRE AS PERGUNTAS ANTERIORES (43 A 66), CIRCULE A EXPERIÊNCIA QUE VOCÊ CONSIDERA DE MAIOR GRAVIDADE. CIRCULE O NÚMERO.

ABAIXO, HÁ UMA LISTA DE PROBLEMAS E DE QUEIXAS QUE AS PESSOAS ÀS VEZES APRESENTAM COMO UMA REAÇÃO A SITUAÇÕES DE VIDA TRAUMÁTICAS. CONSIDERANDO O ITEM QUE VOCÊ CIRCULOU ANTERIORMENTE COMO SENDO O DE MAIOR GRAVIDADE, NA SÉRIE DE PERGUNTAS A SEGUIR (67 a 83), INDIQUE O QUANTO VOCÊ FOI INCOMODADO NO ÚLTIMO MÊS.

Por favor, marque: (1 para **'nada'**), (2 para **'um pouco'**), (3 para **'médio'**), (4 para **'bastante'**) e (5 para **'muito'**).

PROBLEMAS/QUEIXAS	*Nada*	*Um pouco*	*Médio*	*Bastante*	*Muito*
67 - ***Memória, pensamentos e imagens*** repetitivos e perturbadores referentes a uma experiência estressante do passado?	*1*	*2*	*3*	*4*	*5*
68 - ***Sonhos*** repetitivos e perturbadores referentes a uma experiência estressante no passado?	*1*	*2*	*3*	*4*	*5*
69 - De repente, ***agir*** ou ***sentir*** como se uma experiência estressante do passado estivesse acontecendo de novo (como se você a estivesse revivendo)?	*1*	*2*	*3*	*4*	*5*
70 - Sentir-se ***muito chateado*** ou ***preocupado*** quando alguma coisa lembra você de uma experiência estressante do passado?	*1*	*2*	*3*	*4*	*5*
71 - Sentir ***sintomas físicos*** (por exemplo, coração batendo forte, dificuldade de respirar, suores) quando alguma coisa lembra você de uma experiência estressante do passado?	*1*	*2*	*3*	*4*	*5*
72 - Evitar ***pensar*** ou ***falar sobre*** uma experiência estressante do passado ou evitar ***ter sentimentos*** relacionados a esta experiência?	*1*	*2*	*3*	*4*	*5*
73 - Evitar ***atividades*** ou ***situações*** porque ***elas lembram*** uma experiência estressante do passado?	*1*	*2*	*3*	*4*	*5*
74 - Dificuldades para ***lembrar-se de partes importantes*** de uma experiência estressante do passado?	*1*	*2*	*3*	*4*	*5*
75 - ***Perda de interesse*** nas atividades que você antes costumava gostar?	*1*	*2*	*3*	*4*	*5*
76 - ***Sentir-se distante*** ou ***afastado*** das outras pessoas?	*1*	*2*	*3*	*4*	*5*
77 - Sentir-se ***emocionalmente entorpecido*** ou ***incapaz*** de ter sentimentos amorosos pelas pessoas que lhe são próximas?	*1*	*2*	*3*	*4*	*5*
78 - Sentir-se como se você ***não tivesse expectativas para o futuro?***	*1*	*2*	*3*	*4*	*5*
79 - Ter problemas para ***pegar no sono*** ou para ***continuar dormindo?***	*1*	*2*	*3*	*4*	*5*
80 - Sentir-se ***irritável*** ou ter ***explosões de raiva?***	*1*	*2*	*3*	*4*	*5*
81 - Ter ***dificuldades*** para se ***concentrar?***	*1*	*2*	*3*	*4*	*5*
82 - Estar ***'superalerta', vigilante*** ou ***'em guarda'?***	*1*	*2*	*3*	*4*	*5*
83 - Sentir-se ***tenso*** ou facilmente ***sobressaltado?***	*1*	*2*	*3*	*4*	*5*

Anexo E - Artigo publicado na *PLOS ONE*

OPEN ACCESS Freely available online

PLOS | ONE

Clinical and Socio-Demographic Characteristics of College Students Exposed to Traumatic Experiences: A Census of Seven College Institutions in Northeastern Brazil

Liana R. Netto[1]*, Patrícia Cavalcanti-Ribeiro[1], Juliana L. Pereira[1,3], José F. Nogueira[1], Lene L. Santos[1], Sidnei B. Lira[1], Gisela M. Guedes[1], Carlos A. Teles[3], The Trauma, Anxiety Disorders Study Group (TADSG) - UFBA[¶], Karestan C. Koenen[4], Lucas C. Quarantini[1,2]

1 Programa de Pós-graduação em Medicina e Saúde, Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil, **2** Departamento de Neurociências e Saúde Mental, Faculdade de Medicina da Bahia, Universidade Federal da Bahia, Salvador, Bahia, Brazil, **3** Universidade Estadual de Feira de Santana, Feira de Santana, Bahia, Brazil, **4** Department of Epidemiology, Mailman School of Public Health Columbia University, New York, New York, United States of America

Abstract

Background: Epidemiological studies show that most of the adult population will be exposed to at least one potentially traumatic event in the course of his/her life; adolescence and early adulthood are the most vulnerable periods of life for exposure to traumatic experiences (70% of their deaths are due to external causes). Posttraumatic Stress Disorder is characterized by the development of dysfunctional symptoms that cause distress or social, academic, or occupational impairment, as result of exposure to a traumatic event. The aim of this multicentric study is to establish the proportion of college students, within seven institutions in Northeastern Brazil, who were exposed to traumatic experience and met PTSD criteria.

Methods/Design: A one-phase census protocol of seven college institutions in three metropolitan regions in Northeastern Brazil was performed (April to July 2011). All students aged 18 years or older, matriculated and attending their first or final semester were eligible. The self-applied protocol consisted of a socio-demographic questionnaire and the following scales adjusted to Brazilian Portuguese standards Trauma History Questionnaire (THQ), PTSD Checklist-Civilian (PCL-C), Impulsivity Scale (BIS-11). Data were entered into SPSS 17.0.

Results: 2213 (85.5%) students consented to participate, and completely filled in the protocols. Of these, 66.1% were woman, mean age 23.9 (SD 6.3), 82.7% were single, and 57.3% attended university outside their native cities. The total PTSD prevalence was 14%, and the median for frequency of trauma exposure was 5 events.

Conclusion: A high frequency of exposure to violence, as well as a high rate of PTSD, suicide attempts, and high-risk sexual behavior was found in Brazilian college students. This highlights the importance of effective public health actions in relation to the prevention and treatment of PTSD and other dysfunctional behaviors resulting from traumatic exposure in young individuals, usually an at risk population for violence and traumatic situations.

Citation: Netto LR, Cavalcanti-Ribeiro P, Pereira JL, Nogueira JF, Santos LL, et al. (2013) Clinical and Socio-Demographic Characteristics of College Students Exposed to Traumatic Experiences: A Census of Seven College Institutions in Northeastern Brazil. PLoS ONE 8(11): e78677. doi:10.1371/journal.pone.0078677

Editor: Jerson Laks, Federal University of Rio de Janeiro, Brazil

Received June 21, 2013; **Accepted** September 13, 2013; **Published** November 13, 2013

Funding: The funding for the study came partially from the Edital Universal Ministério da Ciência e Tecnologia/Conselho Nacional de Desenvolvimento Científico e Tecnológico 14/2010, 474869/2010-5. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. No additional external funding received for this study.

Competing Interests: The authors have declared that no competing interests exist.

* E-mail: lianetto@uol.com.br

[¶] Members of the Trauma and Anxiety Disorders Study Group can be found in the acknowledgments.

Introduction

Epidemiological studies show that most members of the adult population will be subject to at least one potentially traumatic event in the course of their lives [1,2]. Among all stages of life, adolescence and early adulthood are the greatest periods of vulnerability for exposure to traumatic experiences, whereas 70% of adolescent deaths are due to external causes (68.43% between the ages of 10 and 19 years), and likewise for young adults (70.41% between 20 and 29 years) [3].

Greater impulsiveness and assuming of high-risk behavior, due to an imbalance in neurofunctional regulation between late prefrontal cortex development (responsible for executive function and inhibitory control) and increased responsiveness in the *nucleus accumbens* (responsible for novelty seeking and immediate gratification), occurs in the beginning of adult life [4], and may

contribute to members of this age group exposing themselves to interpersonal violence.

The vulnerability of college students to exposure to traumatic experiences may also be seen as a result of the abrupt transition to independent living. This is often associated with isolation and the loss of support from home [5], which has been demonstrated by previous research regarding involvement in violent situations [6], and can be even more dramatic where the setting favors exposure to violence: rates of violence are particularly high in the Americas, where the average homicide rates for the years 2000–2004, estimated at 17.8 homicides per 100,000 inhabitants, were the highest in the world [7]. In many international comparisons, performed using data from the World Health Organization, Brazil has always occupied one of the top positions among Latin American countries in terms of high homicide rates [2].

In 2000, violent deaths were predominantly caused by homicides [8,9], with the risk 12 times higher for males (53/100,000) than for females (4/100,000) [10]. Ninety percent of these deaths were perpetrated with firearms in urban areas [11], and since 1998 (when the first official survey was made to map violence in Brazil) to the present day, the youth population retains a high prevalence among homicide cases representing a major unresolved problem for the country's policies.

In spite of the history of violence in Brazil, there are no previous local populational data about the prevalence of PTSD, including among college students. The aim of this study is to describe clinical and socio-demographic characteristics of college students at seven college institutions in Northeastern Brazil who have been exposed to traumatic experiences.

Methods/Design

Ethical Aspects

This study has been approved by the Ethics Review Board of Bahia (CEP/COM/UFBA- process number 227/2010) and Paraíba (CEP/Fac. Sta. Maria, 17-02-2011). Participants were informed about research procedures and risks. They signed an informed consent form and received a copy of it. The informed consent form included a list of addresses and phone numbers of public institutions and services supporting mental health – psychiatric and psychological – that could handle any demands which the questionnaire may provoke. All questions were answered and any points of uncertainty were clarified. If the potential subject did not provide informed consent, he/she was excluded from the study.

Study Design

This study constitutes a one-phase research project that aims to explore key aspects of traumatic experiences in college students from seven institutions in Northeastern Brazil.

Setting

Northeastern Brazil contains 27.8% of the Brazilian population, totaling 53,081,950 inhabitants and became, in 2010, the region with the second-highest concentration of undergraduate students in the country (19.3% of all Brazilian students) [12]. Of these, 31.8% are matriculated at federal universities, 31.4%, at state universities and 36.8% at private institutions [12].

The majority of the population is concentrated in urban areas (73.1%), and 80.9% are 29 years or younger [13]. Data from the Brazilian Institute of Geography and Statistics (IBGE) showed that in 2010 the Brazilian average annual income was U$ 3.808,28, while the average annual income in Southeastern Brazil was U$ 4.683,72 and the average annual income in Northeastern Brazil was U$ 2.277,12 [13].

Sampling Procedure

Seven college institutions were selected for reasons of convenience in three urban areas of Bahia and Paraiba. In order to select representative college institutions, we sought to include three public (2 federal and 1 state) and four private colleges in Northeastern Brazil; thereby capturing a broad geographic profile of Northeastern college students, considering that students, very often, attend university outside their native cities [14].

The study included all students matriculated at the university and attending their first or final semesters in all coursework from the 7 college institutions, aged 18 years or older, and who consented to participate in the study by signing the consent form.

Measurements

The self-applied protocol included a fully structured socio-demographic questionnaire along with three scales which have been widely applied in epidemiological surveys. All of the scales had been previously translated and adapted to Brazilian Portuguese. All participants answered the full assessment anonymously, which lasted approximately 20–30 minutes.

Socio-demographics. The socio-demographic questionnaire included gender, age, marital status, employment status, parents' educational level, annual family income, migration history, and parents' marital status.

Mental health. psychiatric symptoms assessed in the study are:

a) PTSD (assessed through the PTSD Checklist- PCL-C [15]): the instrument is comprised of 17 items based on the diagnostic criteria of the DSM-IV for PTSD. Thus, the first 5 items refer to the re-experience symptoms group (criterion B), the next 7 items refer to the emotional avoidance/numbing group (criterion C), and the last 5 items address the hyperarousal group (criterion D). In the instructions on how to fill-in the PCL-C, the subject was instructed to anchor their answers to the worst trauma he/she had experienced according to the Trauma History Questionnaire, and was asked to report how much he/she has been troubled by the listed problems and complaints in the past month (not at all, a little bit, moderately, quite a bit, or extremely). The Brazilian version of the PTSD Scale (PCL-C) has received a transcultural adaptation [15–17] which has become widely accepted. The diagnosis was made by combining two methods, in order to improve accuracy and ensure that an individual has the necessary pattern of symptoms with sufficient severity as required by the DSM-IV: the first method requires that the individual matches at least one B item (questions 1–5), at least three C items (questions 6–12) and at least two D items from the DSM-IV (questions 13–17). Symptoms rated as "moderately" severe or greater are considered clinically meaningful [18]. The second method determines whether the total severity score equals or exceeds a given cut-off point. A total symptom severity score (range = 17–85) can be obtained by taking the sum of the scores from each of the 17 items.

   Based on Adkins et al. (2008) [19], which used a similar setting (civilian trauma-exposed undergraduates) to explore and compare the psychometric properties of seven self-reported measures of PTSD, the adopted cut-off point for PCL-C was ≥45. According to the authors, this was the

optimally efficient cut-off score previously found for this population, which yields a sensitivity of .78 and specificity of .92, positive predictive value of .54, negative predictive value of .97, efficiency of .91, quality of sensitivity of .49, quality of efficiency .59, and quality of specificity .74.

b) Impulsivity (assessed through BIS 11 [20]): this 30-item self-administered scale assesses the presence of impulsive behaviors from the theoretical model proposed by Ernst Barratt through 3 factors: motor, attentional and lack of planning [21], it being the most widely used scale for clinical and research propose. The three factors are randomly distributed throughout the scale, and the answers are given according to 4 options: 1. rarely/never, 2. sometimes, 3. often, 4. almost always/always

c) Alcohol, tobacco and illicit psychoactive substance use, assessed through five questions which aim to investigate the substance use pattern: first use, current use, frequency, quantity, interpersonal consequences (fights, accidents or other high-risk situations that occurred during substance use).

d) Sexual risk behaviors (assessed through a single Yes/No question about condom use during any sexual relationship with a non-stable partner).

e) Suicide (assessed through the question of how many times one has attempted to commit suicide).

Exposure to traumatic events. Assessed through the Trauma History Questionnaire (THQ) [22], which is a list of 24-items, including 23 events that could be considered potentially traumatic and 1 item that allows subjects to report on any personal experiences that were not captured in the other 23 items. Information on the frequency and age(s) at the time(s) of exposure was also obtained. At the end, participants are asked to select, from the items identified on the THQ, the event they found the most distressing. The Brazilian version of THQ has received a transcultural adaptation [23] which is widely accepted.

Procedures

The preparative procedures for the collection began in October 2010. Data was collected from April 2011 until July 2011. For a more complete explanation of the investigation flow, see Figure S1.

Efforts were made to reach all students in their first or final semester, matriculated at the university and attending coursework from the 7 college institutions, such as: revisiting classrooms, awaiting students' arrival, and rescheduling visits.

Data regarding the profile of absent students (25.4% of students matriculated at the university and not encountered in classes) were acquired in order to compare with those active students enrolled in the study.

The training course for researchers consisted of a 10-hour theoretical module, followed by a field application conducted by the authors. Regular meetings with supervisors were carried out in order to give clarifications and standardize the interview procedures.

Data Analyses

1. Description of participants' characteristics by means of univariate analyses: age, gender, marital status, academic performance, parental educational level, origin (being local or from another city), attending semester and family income.
2. The prevalence of estimated PTSD, alcohol misuse and other illicit psychoactive substance use, suicide attempts, high-risk sexual behavior and exposure to other traumatic life experiences were made using crosstabulation.

Results

The analyses were conducted among a population of 2213 subjects (56.9% matriculated at the university in their first semester, and 43.1% in their final one), of whom 57.3% were attending university outside their native cities. The students were mostly woman (66.1%), mean age 23.9 (SD 6.3), and single (82.7%). (Table 1) The total PTSD prevalence was 14%, among which the most impulsive were the most affected (56.1% of PTSD subjects).

The education level of the students' parents is predominantly at basic school level (elementary and middle school), and is inversely proportional to the probability of their offspring having PTSD. On the other hand, family annual income was in the majority at or below U$ 5,472 (59.4%), and was not clearly associated with PTSD levels.

The majority of students' parents are married (74.2%), and PTSD is more common among divorced parents' offspring (15.5% compared to 13.3% of the married parents' offspring).

Students in federal institutions showed a higher prevalence of PTSD (17%), followed by private institutions (with 14.4% of their students presenting PTSD) and state institutions (with 11.8% presenting), as seen in Table 1.

The median for frequency of trauma exposure was 5 events. The events listed by THQ were grouped into 8 categories: victims of non-sexual violence, sexual violence, accidents, natural disasters, man-made disasters, disease, to witness or receive news of the death or injury of others and other traumas (Table 2). While to witness or receive news of death, acute disease or severe injury of close friends, including family, appeared as the most frequent type of traumatic event (81.7% of the students had experienced this), followed by non-sexual violence (63.9%), and accidents (27.4%), sexual violence was the type of event that most frequently resulted in PTSD (34.1% of the victims developed PTSD).

PTSD prevalence had a strong association with attempted suicide (21.1% of PTSD subjects had already attempted suicide one or more times, compared with 5.4% of non-PTSD subjects). An association between PTSD and high-risk sexual behavior was also found (26.3% of PTSD subjects did not regularly use a condom with non-stable partners). However, substance misuse was not clearly associated with PTSD (Table 3).

From a total of 3701 students matriculated at the university, 937 (25.4%) were not included due to absence, and 175 (4.8%) were not included because they were younger than 18.

Data regarding 331 (35.3%) of the 937 absent students (matriculated at the university and not encountered in classes), from five of the seven college institutions studied, showed that 56.8% of absent students were matriculated in their first semester, 52.2% were female, 59.2% were 22 years or older, and 84.2% were not local students (Table 4).

Of those 331 absent students, 122 (36.9%) were not present at the time of collection, but there were records of their presence in other classes, 197 of the absent students (59.5%) were matriculated, but there were no records of their presence, and only 12 of the absent students (3.6%) had officially interrupted the semester in progress.

Discussion

The existing literature has certainly shown progress in understanding the effects of traumatic experiences on mental

Table 1. Socio-demographic characteristics of college students exposed to traumatic experiences in Northeastern Brazil.

Socio-Demographic Variables		Total N (%)	Without PTSD N (%)	With PTSD N (%)
Gender	**Female**	1412 (66.1)	1183 (83.8)	229 (16.2)
	Male	725 (33.9)	653 (90.1)	72 (9.9)
Age	**≤22 years**	1138 (51.4)	993 (87.3)	145 (12.7)
	>22 years	1075 (48.6)	910 (84.7)	165 (15.3)
Marital status	**Single**	1789 (82.7)	1548 (86.5)	241 (13.5)
	Married	342 (15.8)	290 (84.8)	52 (15.2)
	Divorced	27 (1.2)	18 (66.7)	9 (33.3)
Origin	**Local**	844 (42.7)	732 (86.7)	112 (13.3)
	Non-local	1131 (57.3)	970 (85.8)	161 (14.2)
Annual family income	**≤ U$ 5,472**	1282 (59.4)	1095 (85.4)	187 (14.6)
	≥ U$ 26,448	876 (40.6)	752 (85.8)	124 (14.2)
Semester	**First**	1260 (56.9)	1092 (86.7)	168 (13.3)
	Final	953 (43.1)	811 (85.1)	142 (14.9)
Type of institution	**Federal**	554 (25)	463 (83.6)	91 (16.4)
	State	808 (36.5)	713 (88.2)	95 (11.8)
	Private	851 (38.5)	727 (85.4)	124 (14.6)
Father's education level	**None**	87 (4)	71 (81.6)	16 (18.4)
	Elementary	1047 (48.4)	890 (85)	157 (15)
	Middle School	695 (32.1)	608 (87.5)	87 (12.5)
	College	235 (10.9)	204 (86.8)	31 (13.2)
	Postgraduate	100 (4.6)	89 (89)	11 (11)
Mother's education level	**None**	65 (3)	55 (84.6)	10 (15.4)
	Elementary	829 (38.3)	704 (84.9)	125 (15.1)
	Middle School	787 (36.3)	680 (86.4)	107 (13.6)
	College	301 (13.9)	262 (87)	39 (13)
	Postgraduate	184 (8.5)	161 (87.5)	23 (12.5)
Parents' marital status	**Married**	1559 (74.2)	1352 (86.7)	207 (13.3)
	Divorced	543 (25.8)	459 (84.5)	84 (15.5)

PTSD: Posttraumatic Stress Disorder.
doi:10.1371/journal.pone.0078677.t001

health, although the issue remains under-researched in low and middle income countries. In Brazil there are just a few studies about PTSD prevalence in selected samples [24], and only two recent, large studies from a general population, both in Southeastern Brazil, the most developed region in Brazil [25,26]. To our knowledge, this is the first population-based study to investigate trauma exposure and PTSD in Brazilian college students and the first in the Northeastern region of the country. It is plausible that the chosen population is representative of Northeastern college students given that 57.3% were attending university outside of their native cities, which reinforces the idea that migration is an intense phenomenon in this region.

In accordance with previous literature [1,27], women were more likely to develop PTSD than men (16.2% of woman presented PTSD, compared to 9.9% of men).

The prevalence of PTSD found in this research (14%) is comparable with very high rates found in other studies conducted in low income countries, where people have experienced war, conflict or mass violence (15.8% in Ethiopia, 17.8% in Gaza Strip, 28.4% in Cambodia, and 37.4% in Algeria) [28]. Unsurprisingly, 63.9% of the students reported that they had been exposed to non-sexual violence, and 9.4% of them had been exposed to sexual violence.

It is noteworthy that variation in family annual income was not associated with different PTSD rates, but the educational level of the students' parents has an inversely proportional association with the students' PTSD frequency. There is consistent evidence about the role that parents have on the mental health of their offspring [29], and previous studies have already established that a low education level of the victim is a vulnerability factor for PTSD [30]. However, little has been studied about the relationship between parental education level and its effect on the exposure of their offspring to potentially traumatic situations and the subsequent development of PTSD. In the present study, mothers presented a higher level of education (22.4% of them have graduated from college or better), but a lower education level of the father was associated with higher prevalence of PTSD (fathers with no formal education had 18.4% of their offspring presenting PTSD, while fathers with postgraduate degrees had 11% of their offspring with PTSD). One possible hypothesis is that fathers with a low education level may inflict punishment through violence more often and/or with more physical injury than mothers.

Table 2. Exposure to traumatic events of college students in Northeastern Brazil.

Traumatic Events	Total N (%)	Without PTSD N (%)	With PTSD N (%)
Victims of non-sexual violence	1414 (63.9)	1176 (83.2)	238 (16.8)
Someone tried to take something directly from the subject by using force or the threat of force	785 (35.5)	648 (82.5)	137 (17.5)
Attempted or actually robbed	583 (26.3)	477 (81.8)	106 (18.2)
Attempted or actually had home broken when the subject wasn't there	356 (16.1)	294 (82.6)	62 (17.4)
Attempted or actually had home broken when the subject was there	255 (11.5)	205 (80.4)	50 (19.6)
Was attacked with a gun, knife or some other weapon.	122 (5.5)	89 (73)	33 (27)
Was someone ever attacked without a weapon and was seriously injured	55 (2.5)	35 (63.6)	20 (36.4)
Someone in subject's family was ever beaten, struck or pushed hard enough to cause injury	291 (13.1)	203 (69.8)	88 (30.2)
Victims of sexual violence	208 (9.4)	137 (65.9)	71 (34.1)
Was ever forced to have intercourse, oral or anal sex against will	59 (2.7)	35 (59.3)	24 (40.7)
Someone ever touched the private parts of the body, or made the subject touch his/hers, under force or threat	120 (5.4)	79 (65.8)	41 (34.2)
Any other situation in which another person tried to force the subject to have unwanted sexual contact	84 (3.8)	53 (63.1)	31 (36.9)
To witness or receive news of death or injury of others	1808 (81.7)	1519 (84)	289 (16)
Witnessed someone seriously injured or killed	833 (37.6)	681 (81.8)	152 (18.2)
Exposed to dead bodies	638 (30.6)	556 (82)	122 (18)
Close friend or family member was murdered, or killed by a drunk driver	254 (11.5)	204 (80.3)	50 (19.7)
Death of a spouse, romantic partner, or child	35 (1.6)	21 (60)	14 (40)
Received news of a serious injury, life-threatening illness or unexpected death of someone close	1489 (67.3)	1248 (83.8)	241 (16.2)
Victims of accidents	607 (27.4)	492 (81.1)	115 (18.9)
Victims of natural disaster	137 (6.2)	97 (70.8)	40 (29.2)
Victims of man-made disaster	237 (10.7)	191 (80.6)	46 (19.4)
Exposed to dangerous chemicals or radioactivity	86 (3.9)	65 (75.6)	21 (24.4)
Combat while in military service	17 (0.8)	17 (100)	0
Other man-made disaster	147 (6.6)	121 (82.3)	26 (17.7)
Victims of disease	228 (10.3)	169 (74.1)	59 (25.9)
Victims of other traumas	232 (10.5)	190 (81.9)	42 (18.1)

PTSD: Posttraumatic Stress Disorder.
doi:10.1371/journal.pone.0078677.t002

A propos, Bordin et al. (2006) [31], executed the first population-based study in Brazil regarding the connection between severe physical punishment and mental health problems in children and adolescents in low income areas, usually associated with low levels of formal education. The research showed that severe punishment is common in this population (10.1%), and that traumatic experiences of infants lead to permanent deficits in the regulation of behavioral, cognitive and emotional processes. This could be a factor that contributes to the intergenerational transmission of violent behaviors, which may in turn be helping to perpetuate the epidemic level of violence.

While to witness or to receive news of death, acute disease or severe injury of close friends, including family, appeared as the most frequent event, its victims presented the lowest rate of PTSD (16%). One hypothesis is that this kind of etiologic event can generate what is known as Partial PTSD [32]. In their investigative study about the concept of Partial PTSD, Breslau et al (2004) [32] demonstrated that while 68.4% of Full PTSD subjects were victims of interpersonal violence, only 46.2% of Partial PTSD subjects were victims of the same type of event, concluding that Partial PTSD is normally due to an etiologic event of lesser magnitude, with different presentation and duration of symptoms.

The present study demonstrated that 21.1% of subjects among the PTSD group have attempted suicide (AS), while the rate in the group without PTSD was almost four-fold lower (5.4%). This is critical information since previous AS is a predictor of additional attempts and of death from a completed suicide [33–35]. Therefore, AS has been pointed out as one of the expected consequences of PTSD [36].

BIS-11 demonstrated that increased impulsive behaviors were directly associated with a higher prevalence of PTSD and substance misuse, which is well established by previous studies. [37,38]. However, we did not observe an association between PTSD and substance misuse. This finding is not in accordance with previous reports in the literature [1]. More studies are necessary to better explore this finding and to better understand which other factors could be interfering, such as sub notification of cases or report bias.

High-risk sexual behavior was more frequent among PTSD subjects, as well as among the more impulsive participants: 49.5% of the most impulsive subjects of the study did not regularly use a

Table 3. Clinical characteristics of college students with PTSD in Northeastern Brazil.

Clinical Variables		Total N (%)	Without PTSD N (%)	With PTSD N (%)
PTSD		2213 (100)	1903 (86)	310 (14)
Attempted Suicide		167 (7.6)	102 (5.4)	65 (21.1)
Alcohol Use	**Sporadic use**	999 (50)	849 (49.2)	150 (55.4)
	Weekly use	282 (14.2)	241 (14.1)	41 (15.1)
	Daily use	9 (0.5)	8 (0.5)	1 (0.4)
Cigarette Use	**Sporadic use**	175 (8)	143 (7.6)	32 (10.6)
	Weekly use	28 (1.3)	22 (1.2)	6 (2)
	Daily use	47 (2.2)	35 (1.9)	12 (4)
Marijuana Use	**Sporadic use**	93 (4.2)	76 (4)	17 (5.5)
	Weekly use	9 (0.4)	9 (0.5)	0 (0)
	Daily use	10 (0.5)	7 (0.4)	3 (1)
Ecstasy Use	**Sporadic use**	29 (1.3)	25 (1.3)	4 (1.3)
	Weekly use	0 (0)	0 (0)	0 (0)
	Daily use	1 (0)	1 (0.1)	0 (0)
Cocaine Use	**Sporadic use**	41 (1.9)	32 (1.7)	9 (2.9)
	Weekly use	5 (0.2)	4 (0.2)	1 (0.3)
	Daily use	2 (0.1)	2 (0.1)	0 (0)
Crack Use	**Sporadic use**	2 (0.1)	2 (0.1)	0 (0)
	Weekly use	0 (0)	0 (0)	0 (0)
	Daily use	1 (0)	1 (0.1)	0 (0)
Condom non-use	**(non-stable partners)**	363 (16.7)	283 (15.1)	80 (26.1)
BIS 11	**Less impulsive**	722 (32.6)	661 (34.7)	61 (19.7)
	Averagely impulsive	704 (31.8)	629 (33.1)	75 (24.2)
	More impulsive	787 (35.6)	613 (32.2)	174 (56.1)

PTSD: Posttraumatic Stress Disorder.

doi:10.1371/journal.pone.0078677.t003

condom with non-stable sexual partners (compared to 18.9% of the less impulsive ones, when BIS-11 is divided in tertiles). Both outcomes are in accordance with previous literature [39,40].

Data regarding the absent students (those matriculated at the university and not encountered in class) showed that both present and absent students have a similar profile based on current semester, gender and area of study. An important difference between present and absent students is shown by the variable *origin*, and there is some difference with regard to the *age* variable. Neither of these two variables in the enrolled group was associated with a clinically meaningful elevation of PTSD rates.

No records were found regarding the reasons for interrupting the semester or for absenteeism. One possible reason for the age variation between groups is increased absence due to a conflicting

Table 4. Comparison between present and absent college students.

Socio-Demographic Variables		Present Students N (%)	Absent Students N (%)
Semester	**First**	1260 (56.9)	188 (56.8)
	Final	953 (43.1)	143 (43.2)
Gender	**Female**	1412 (66.1)	109 (52.2)
	Male	725 (33.9)	100 (47.8)
Area	**Exact Sciences**	278 (12.9)	34 (10.3)
	Health Sciences	503 (22.7)	115 (34.7)
	Human Sciences	1412 (64.4)	182 (55)
Origin	**Local**	844 (42.7)	33 (15.8)
	Non-local	1131 (57.3)	176 (84.2)
Age	**≤22 years**	1138 (51.4)	135 (40.8)
	>22 years	1075 (48.6)	196 (59.2)

doi:10.1371/journal.pone.0078677.t004

employment, especially for those older students who no longer have any parental support. Another possible reason is the missing of classes due to difficulties with public transportation (especially those who live in surrounding areas), as well as frequent trips, especially by non-local students whose parents live outside the metropolitan area. Matriculation at multiple college institutions, for first semester students is another possible explanation. This is a common phenomenon in Brazilian universities, where students compete in several exams (potentially in multiple states), with results being released at different times, and matriculate in each one to keep their options open.

Limitations

The non-inclusion of absentee and non-consenting students in the analyses may have resulted in the loss of the most impulsive and/or most severely affected individuals. Also, other outcomes of trauma exposure that can act as confounders were not investigated, such as depressive or other symptoms of anxiety and thus were not controlled for. On the other hand, avoidance is a well-known phenomenon in PTSD, indeed being one of its diagnosis criteria [41], and may result in less accurate reports. It is assumed that self-applied scales can reduce the report bias. In addition, memory bias can also occur, resulting in less reliable reports, given that some events may have occurred in the early life of respondents.

Conclusions

To the best of our knowledge, this is the first study to investigate trauma exposure and PTSD prevalence in Brazilian college students, a non-clinical population. It shows a high frequency of exposure to violence, as well as a high rate of PTSD conversion, suicide attempts, and high-risk sexual behavior. This highlights the importance of effective public health actions in relation to primary and secondary prevention and treatment of PTSD and other dysfunctional behaviors resulting from traumatic exposure among Brazilian youth, usually an at-risk population for violence and traumatic situations.

It is also very important that the primary service professionals receive adequate training to screen and identify traumatic life events. Since traumatized patients tend to manifest avoidance behavior, they may underreport traumatic experiences if not interrogated. The delay in proper diagnosis of PTSD may contribute to increased distress and symptoms, which can be a risk factor for the development of comorbidities or death.

Acknowledgments

Adriana Duarte, Amanda Loureiro, Deivson Mundim, Rejane Santana, Isabela Albuquerque, Rana Barbosa, Lilian Carvalho, Susan Carvalho, Reinilza Nunes, Weslley Batista, Maria Rosa Dantas, Antonio Dantas Júnior, Albaniza Formiga, Fernanda Dias, Fransuélio Nascimento, Jesana Damasceno, Perla Soares, and Rubens Lima.

Supporting Information

Figure S1 Flowchart of data collection.
(TIFF)

Author Contributions

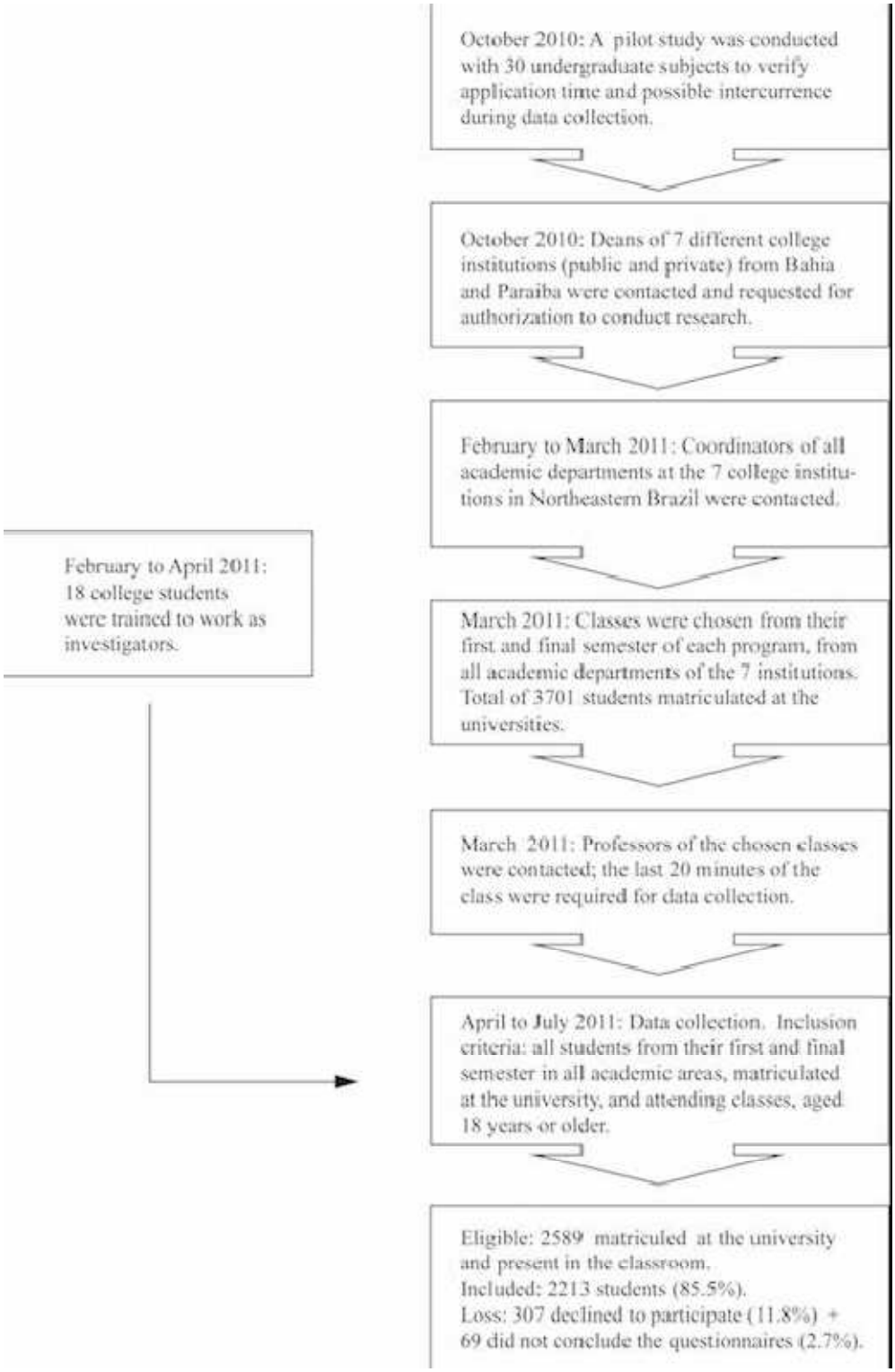
Conceived and designed the experiments: LCQ KCK LRN PCR CAT JLP JFN. Performed the experiments: LRN JLP JFN TADSG - UFBA LCQ. Analyzed the data: LRN PCR CAT LCQ. Contributed reagents/materials/analysis tools: LRN CAT. Wrote the paper: LRN PCR LCQ. Interpretation and discussion of results: LRN PCR LLS SBL GMG CAT LCQ KCK.

References

1. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB (1995) Posttraumatic stress disorder in the National Comorbidity Survey. Arch Gen Psychiatry 52: 1048–1060.
2. Waiselfisz JJ (2012) Mapa da Violência 2012: A Cor dos Homicídios no Brasil Rio de Janeiro. In: CEBELA F, SEPPIR/PR, editor. Rio de Janeiro; Brasília - Brazil.
3. DATASUS (2006) Indicadores de Dados Básicos (IDB) 2006. In: , editor. Brasília: Ministério da Saúde.
4. Casey BJ, Getz S, Galvan A (2008) The adolescent brain. Dev Rev 28: 62–77.
5. Forke CM, Myers RK, Catallozzi M, Schwarz DF (2008) Relationship violence among female and male college undergraduate students. Arch Pediatr Adolesc Med 162: 634–641.
6. Banyard VL, Cross C, Modecki KL (2006) Interpersonal violence in adolescence: ecological correlates of self-reported perpetration. J Interpers Violence 21: 1314–1332.
7. Ribeiro WS, Andreoli SB, Ferri CP, Prince M, Mari JJ (2009) [Exposure to violence and mental health problems in low and middle-income countries: a literature review]. Rev Bras Psiquiatr 31 Suppl 2: S49–57.
8. Gawryszewski VP (2007) Injury mortality report for Sao Paulo State, 2003. Sao Paulo Med J 125: 139–143.
9. Gawryszewski VP, Rodrigues EM (2006) The burden of injury in Brazil, 2003. Sao Paulo Med J 124: 208–213.
10. Filho AMS, Souza MdFMd, Gazal-Carvalho C, Malta DC, Alencar AP, et al. (2007) Analysis of homicide mortality in Brazil. Epidemiologia e Serviços de Saúde 16: 7–18.
11. Netto LR, Koenen KC, Mari JdJ, Ribeiro WS, Mello MF, et al. (2010) The Impact of Violence on the Mental Health of People Living in Urban Centers in Brazil. The Psychological Impact of Living under Violence. New York: Nova Science Publishers. pp. 79–90.
12. INEP (2011) Censo da Educação Superior no Brasil 2010. In: Educação Md, editor. Brasília, Brazil: Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. pp. 24.
13. IBGE (2011) Sinopse do Censo Demográfico 2010. In: Ministério do Planejamento OeG, editor. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística.
14. FONAPRACE (2011) Perfil Socioeconômico e Cultural dos Estudantes de Graduação das Universidades Federais Brasileiras. In: FONAPRACE, editor. Brasília Fórum Nacional de Pró-Reitores de Assuntos Comunitários e Estudantis (FONAPRACE).
15. Berger W, Mendlowicz MV, Souza WF, Figueira I (2004) Semantic equivalence of the Portuguese version of the Post-Traumatic Stress Disorder Checklist - Civilian Version (PCL-C) for the screening of post-traumatic stress disorder. Revista de Psiquiatria do Rio Grande do Sul 26: 167–175.
16. Passos RB, Figueira I, Mendlowicz MV, Moraes CL, Coutinho ES (2012) Exploratory factor analysis of the Brazilian version of the Post-Traumatic Stress Disorder Checklist: civilian version (PCL-C). Rev Bras Psiquiatr 34: 155–161.
17. Caiuby AVS, Lacerda SS, Quintana MI, Torii TS, Andreoli SB (2012) Cross-cultural adaptation of the Brazilian version of the Impact of Events Scale-Revised (IES-R). Cadernos de Saúde Pública 28: 597–603.
18. PTSD NCf Using PTSD Checklist (PCL). National Center for PTSD.
19. Adkins JW, Weathers FW, McDevitt-Murphy M, Daniels JB (2008) Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. J Anxiety Disord 22: 1393–1402.
20. von Diemen L, Szobot CM, Kessler F, Pechansky F (2007) Adaptation and construct validation of the Barratt Impulsiveness Scale (BIS 11) to Brazilian Portuguese for use in adolescents. Rev Bras Psiquiatr 29: 153–156.
21. Patton JH, Stanford MS, Barratt ES (1995) Factor structure of the Barratt impulsiveness scale. J Clin Psychol 51: 768–774.
22. BL G (1996) Trauma history questionnaire. In: Stamm BH VE, editor. Measurement of stress, trauma and adaptation. Lutherville: Sidran Press. pp. 366–368.
23. Fiszman A, Cabizuca M, Lanfredi C, Figueira I (2005) The cross-cultural adaptation to Portuguese of the Trauma History Questionnaire to identify traumatic experiences. Rev Bras Psiquiatr 27: 63–66.
24. Berger W, Figueira I, Maurat AM, Bucassio EP, Vieira I, et al. (2007) Partial and full PTSD in Brazilian ambulance workers: prevalence and impact on health and on quality of life. J Trauma Stress 20: 637–642.
25. Ribeiro WS, Mari Jde J, Quintana MI, Dewey ME, Evans-Lacko S, et al. (2013) The impact of epidemic violence on the prevalence of psychiatric disorders in sao paulo and rio de janeiro, Brazil. PLoS One 8: e63545.
26. Andrade LH, Wang YP, Andreoni S, Silveira CM, Alexandrino-Silva C, et al. (2012) Mental disorders in megacities: findings from the Sao Paulo megacity mental health survey, Brazil. PLoS One 7: e31879.

27. Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, et al. (1998) Trauma and posttraumatic stress disorder in the community: the 1996 Detroit Area Survey of Trauma. Arch Gen Psychiatry 55: 626–632.
28. de Jong JT, Komproe IH, Van Ommeren M, El Masri M, Araya M, et al. (2001) Lifetime events and posttraumatic stress disorder in 4 postconflict settings. JAMA 286: 555–562.
29. Dubow EF, Huesmann LR, Boxer P, Landau S, Dvir S, et al. (2012) Exposure to political conflict and violence and posttraumatic stress in Middle East youth: protective factors. J Clin Child Adolesc Psychol 41: 402–416.
30. Zhang Z, Wang W, Shi Z, Wang L, Zhang J (2012) Mental health problems among the survivors in the hard-hit areas of the Yushu earthquake. PLoS One 7: e46449.
31. Bordin IA, Paula CS, do Nascimento R, Duarte CS (2006) Severe physical punishment and mental health problems in an economically disadvantaged population of children and adolescents. Rev Bras Psiquiatr 28: 290–296.
32. Breslau N, Lucia VC, Davis GC (2004) Partial PTSD versus full PTSD: an empirical examination of associated impairment. Psychol Med 34: 1205–1214.
33. Rich CL, Young D, Fowler RC (1986) San Diego suicide study. I. Young vs old subjects. Arch Gen Psychiatry 43: 577–582.
34. Caribe AC, Nunez R, Montal D, Ribeiro L, Sarmento S, et al. (2012) Religiosity as a protective factor in suicidal behavior: a case-control study. J Nerv Ment Dis 200: 863–867.
35. Kessler RC, Borges G, Walters EE (1999) Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. Arch Gen Psychiatry 56: 617–626.
36. Wilcox HC, Storr CL, Breslau N (2009) Posttraumatic stress disorder and suicide attempts in a community sample of urban american young adults. Arch Gen Psychiatry 66: 305–311.
37. Swann AC, Bjork JM, Moeller FG, Dougherty DM (2002) Two models of impulsivity: relationship to personality traits and psychopathology. Biol Psychiatry 51: 988–994.
38. Shin SH, Hong HG, Jeon SM (2012) Personality and alcohol use: the role of impulsivity. Addict Behav 37: 102–107.
39. Rosenberg SD, Trumbetta SL, Mueser KT, Goodman LA, Osher FC, et al. (2001) Determinants of risk behavior for human immunodeficiency virus/acquired immunodeficiency syndrome in people with severe mental illness. Compr Psychiatry 42: 263–271.
40. Kalichman SC, Gore-Felton C, Benotsch E, Cage M, Rompa D (2004) Trauma symptoms, sexual behaviors, and substance abuse: correlates of childhood sexual abuse and HIV risks among men who have sex with men. J Child Sex Abus 13: 1–15.
41. Association AP (2000) Diagnostic and Statistical Manual of Mental Disorders. Washington, DC: American Psychiatric Association.

Figura S1


October 2010: A pilot study was conducted with 30 undergraduate subjects to verify application time and possible intercurrence during data collection.
October 2010: Deans of 7 different college institutions (public and private) from Bahia and Paraíba were contacted and requested for authorization to conduct research.
February to March 2011: Coordinators of all academic departments at the 7 college institutions in Northeastern Brazil were contacted.
February to April 2011: 18 college students were trained to work as investigators.
March 2011: Classes were chosen from their first and final semester of each program, from all academic departments of the 7 institutions. Total of 3701 students matriculated at the universities.
March 2011: Professors of the chosen classes were contacted; the last 20 minutes of the class were required for data collection.
April to July 2011: Data collection. Inclusion criteria: all students from their first and final semester in all academic areas, matriculated at the university, and attending classes, aged 18 years or older.
Eligible: 2589 matriculed at the university and present in the classroom.
Included: 2213 students (85.5%).
Loss: 307 declined to participate (11.8%) + 69 did not conclude the questionnaires (2.7%).

ANEXO F – *Letter* publicada na *Arch Clin Psychiatry*

Quality of life in euthymic bipolar I patients: a prospective study

Sidnei Barbosa Lira[1], Mônica Andrade-Nascimento[2], Mychelle Morais-de-Jesus[1], Lucas C. Quarantini[1], Fabiana Nery Fernandes[1], Diogo Esmeraldo Cavalcanti[3], Amanda Galvão-de-Almeida[1], Gisela Guedes[1], Ângela Miranda-Scippa[1]

[1] Universidade Federal da Bahia (UFBA), Salvador, BA, Brazil.
[2] Universidade Estadual de Feira de Santana (UEFS), Feira de Santana, BA, Brazil.
[3] Universidade do Estado da Bahia (UNEB), Salvador, BA, Brazil.

Lira SB et al. / Arch Clin Psychiatry. 2016;43(4):92

Received: 21/6/2016 – **Accepted:** 12/9/2016

DOI: 10.1590/0101-60830000000081

Dear Editor,

According to the World Health Organization (WHO), Bipolar Disorder (BD) type I has a prevalence of between 1.0% and 1.6% in the general population and is one of the twenty major causes on the worldwide list of diseases that compromise an individual's total functioning[1-3]. Most of the quality of life (QOL) studies on BD emphasize the negative impact in the different QOL domains at all disease stages, but mainly the depressive episodes. Few studies have investigated QOL of bipolar patients during euthymia.

Thus, the present study aims to compare QOL scores in BD type I euthymic patients at two different times, with an interval of 2.5 years (only 38 from 84 could be compared due to absence of euthymia, refusal to participate, unknown location and death).

The Hamilton Rating Scale for Depression (HAM-D-17 ≤ 7)[4] as well as from the Young Mania Rating Scale (YMRS ≤ 7)[5] were used to evaluate if patients were euthymic. They answered a questionnaire to gather clinical and socio-demographic data. Afterwards, they were evaluated through the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, axis I (SCID-I)[6]. Once confirmed the BD type I diagnosis and the state of euthymia, the patient answered the World Health Organization Quality of Life-BRIEF (WHOQOL-BRIEF) instrument[7].

Observations regarding the analyzed patients are as follows: female (78.9%); average age 39.39 years (standard deviation, SD = 11.24); with no permanent partner (84.2%); with paid occupation (60.5%); having predominantly manic/hypomanic first episode (57.9%); no rapid cycling (97.4%); without suicide attempt (73.7%); without psychiatric comorbidities (78.4%); average age at first episode 24.5 years (SD = 11.31), without presence of psychosis during life (55.3%); and time of disease evolution of 14.91 years (SD = 9.9). In relation to the socio-demographic and clinical characteristics of the 38 subjects analyzed at both times, there were also no significant long-lasting differences ($p > 0.05$).

The physical, social and psychological health domains presented reductions, but these reductions were only significant in the psychological health domain ($p = 0.02$) (Table 1).

The psychological health domain refers to individuals' subjective experience regarding their state of psychic well-being related to their personal experience. Therefore, one assumes that BD, by inflicting intense psychic suffering, may cause unfavorable self-analysis in these subjects, regardless of the presence of mood symptoms, resulting in the low scores found in this work. On the other hand, our results confirm the idea that bipolar patients, even when they achieve full clinical remission, show difficulties in returning to their previous level of functioning[8-10]. These findings point to the need of greater care to these individuals, even when euthymic, since unfavorable self-analysis can contribute to more social isolation behaviors, more hopelessness and greater chances of new episodes of the disease.

The main limitation of this study was the small sample size. Additionally, other limitations should be highlighted: first, the retrospective data gathered, which increased the chance of memory bias; second, the selected sample of patients from a specific medical service prevented us from generalizing the results.

Table 1. Quality of life in two different moments (n = 38)

WHOQOL domains	Baseline	Follow-up	Test Z*; *p* value
Physical Health Md (Min-Max)	64.28 (35.71-89.29)	60.71 (32.14-78.57)	- 1.69**; 0.091
Psychological Health Md (Min-Max)	66.67 (33.33-100)	60.42 (29.17-79.17)	- 2.29**; 0.022
Social Relations Md (Min-Max)	66.67 (16.67-100)	58.33 (25-100)	- 0.045**; 0.964
Environment Md (Min-Max)	51.56 (31.25-90.63)	59.37 (18.75-87.50)	- .788***; 0.431

Md: median; Min: minimum; Max: maximum.* Wilcoxon Test. ** Based on positive ranks. *** Based on negative ranks.

References

1. World Health Organization (WHO). The World Health Report: Mental Health – New Understanding, New Hope; 2001.
2. Shippee ND, Shah ND, Williams MD, Moriarty JP, Frye MA, Ziegenfuss JY. Differences in demographic composition and in work, social, and functional limitations among the populations with unipolar depression and bipolar disorder: results from a nationally representative sample. Health Qual Life Outcomes. 2011;9:90.
3. Nery-Fernandes F, Miranda-Scippa A. Suicidal behavior in bipolar affective disorder and socio-demographic, clinical and neuroanatomical characteristics associated. Rev Psiquiatr Clín. 2013; 40(6):220-4.
4. Hamilton M. A rating scale for depression. J Neurol Neurosurg Psychiatry. 1960;23:56-62.
5. Young RC, Biggs JT, Ziegler VE, Meyer DA. A rating scale for mania: reliability, validity and sensitivity. Br J Psychiatry. 1978;133:429-35.
6. First MB, Spitzer RL, Gibbon M, Williams JBW. Structured Clinical Interview for the DSM-IV Axis I Disorders – Patient Edition (SCID-I/P), version 2.0. New York: Biometrics Research, New York State Psychiatric Institute; 1996.
7. Group W. WHOQOL-BRIEF: Field Trial Version. Program on Mental Health. Geneva: World Health Organization; 1996.
8. Kaya E, Aydemir O, Selcuki D. Residual symptoms in bipolar disorder: the effect of the last episode after remission. Prog Neuropsychopharmacol Biol Psychiatry. 2007;31(7):1387-92.
9. Reed C, Goetz I, Vieta E, Bassi M, Haro JM; EMBLEM Advisory Board. Work impairment in bipolar disorder patients – results from a two-year observational study (EMBLEM). Eur Psychiatry. 2010;25(6):338-44.
10. Bernstein EE, Rabideau DJ, Gigler ME, Nierenberg AA, Deckersbach T, Sylvia LG. Patient perceptions of physical health and bipolar symptoms: The intersection of mental and physical health. J Affect Disord. 2016;189:203-6.

Address for correspondence: Diogo Esmeraldo Cavalcanti. Universidade do Estado da Bahia – Departamento de Educação. Rua Silveira Martins, 2555, Cabula – 41150-000 – Salvador Bahia, Brazil.
Phone: +55 (71) 9246-3838. E-mail: desmeraldo.cavalcanti@gmail.com