



CARDIOVASCULAR RISK IN USERS OF AN ALCOHOL AND DRUG PSYCHOSOCIAL CARE CENTER

Risco cardiovascular de usuários de um centro de atenção psicossocial em álcool e drogas

Riesgo cardiovascular en usuarios de un centro de atención psicosocial de alcohol y droga

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ABSTRACT

Objective: To assess cardiovascular risk in users of an Alcohol and Drugs Psychosocial Care Center. **Methods:** A retrospective and analytical study was carried out at an Alcohol and Drugs Psychosocial Care Center in São Luís, Maranhão. The sample consisted of medical records of adult men served from 2015 to 2017. The medical records of individuals who used only alcohol were not included in the study. Socioeconomic, demographic, lifestyle, history of chemical dependence, and anthropometric information were collected. The data were analyzed in Stata® version 13.0 using Poisson regression. **Results:** Of the 122 medical records analyzed, 73.5% (n=89) were aged 20 to 39 years, 79.5% (n=97) were single and 49.2% (n=60) had either incomplete or complete primary education. Regarding nutritional status, 54.9% (n=67) of the individuals presented normal values and 18.0% (n=22) were at risk for cardiovascular diseases based on waist circumference and 17.2% (n=21) were at cardiovascular risk based on waist-to-height ratio. In addition, 36.6% (n=41) and 41.8% (n=51) of the individuals remained at risk of cardiovascular disease based on waist-to-hip ratio and conicity index, respectively. Being aged 40-59 years (OR = 4.40, 95% CI: 1.52-12.75) and using cocaine (OR = 3.27, 95% CI: 1.15 - 9.27) were risk factors for cardiovascular diseases based on waist-to-height ratio. **Conclusion:** The study identified that chemically dependents were young adults at normal weight at risk for cardiovascular disease and waist-to-height ratio was significantly associated with age and cocaine use.

Descriptors: Drug Users; Illicit Drugs; Risk Factors.

RESUMO

Objetivo: Avaliar o risco cardiovascular de usuários de um Centro de Atenção Psicossocial em Álcool e Drogas. **Métodos:** Estudo retrospectivo e analítico, realizado em um Centro de Atenção Psicossocial em Álcool e Drogas em São Luís, Maranhão. A amostra compôs-se por prontuários de homens adultos atendidos nos anos de 2015 a 2017. Os prontuários de usuários exclusivos de



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álcool não foram incluídos no estudo. Coletaram-se informações referentes aos aspectos socioeconômicos, demográficos, estilo de vida, histórico de dependência química, além das informações antropométricas. Utilizou-se o programa Stata[®], versão 13.0, para análise dos dados, sendo realizada regressão de Poisson. **Resultados:** Dos 122 prontuários analisados, 73,5% (n=89) pertenciam à faixa etária de 20 a 39 anos, 79,5% (n=97) eram solteiros e 49,2% (n=60) possuíam ensino fundamental incompleto ou completo. Quanto ao estado nutricional, 54,9% (n=67) dos dependentes estavam eutróficos, 18,0% (n=22) deles estavam em risco para doenças cardiovasculares, de acordo com a circunferência da cintura, e também 17,2% (n=21) pela razão cintura/estatura. Além disso, 36,6% (n=41) e 41,8% (n=51) dos dependentes permaneceram com risco de doença cardiovascular conforme a relação cintura/quadril e o índice de conicidade, respectivamente. Apresentar idade entre 40 e 59 anos (OR = 4,40; IC 95%: 1,52-12,75) e utilizar cocaína (OR = 3,27; IC 95%: 1,15 - 9,27) foram fatores de risco para doenças cardiovasculares pela razão cintura/estatura. **Conclusão:** O estudo identificou como dependentes químicos adultos jovens, eutróficos, com risco de doença cardiovascular e associação significativa da razão cintura/estatura com a idade e a utilização de cocaína.

Descritores: Usuário de Drogas; Drogas Ilícitas; Fatores de Risco.

RESUMEN

Objetivo: Evaluar el riesgo cardiovascular de usuarios de un Centro de Atención Psicosocial de Alcohol y Droga. **Métodos:** Estudio retrospectivo y analítico realizado en un Centro de Atención Psicosocial de Alcohol y Droga de São Luís, Maranhão. La muestra ha sido identificada de historiales clínicos de hombres adultos asistidos entre los años 2015 y 2017. Los historiales de usuarios exclusivos de alcohol no han sido incluidos en el estudio. Se recogieron informaciones de los aspectos socioeconómicos, los demográficos, del estilo de vida, del histórico de dependencia química además de las informaciones antropométricas. Se utilizó el programa Stata[®] versión 13.0 y para el análisis de los datos ha sido realizada la regresión de Poisson. **Resultados:** De los 122 historiales analizados, el 73,5% (n=89) estaban en la franja de edad entre 20 y 39 años, el 79,5% (n=97) eran solteros y el 49,2% (n=60) tenían la educación primaria incompleta o completa. Sobre el estado nutricional, el 54,9% (n=67) de los dependientes eran eutróficos, el 18,0% (n=22) de ellos tenían riesgo para enfermedades cardiovasculares según la circunferencia de la cintura y también el 17,2% (n=21) por la razón cintura/estatura. Además de eso, el 36,6% (n=41) y el 41,8% (n=51) de los dependientes permanecieron con el riesgo para enfermedad cardiovascular según la relación cintura/cuadril y el índice de conicidad, respectivamente. Tener la edad entre 40 y 59 años (OR = 4,40; IC 95%: 1,52-12,75) y utilizar cocaína (OR = 3,27; IC 95%: 1,15 - 9,27) han sido los factores de riesgo para enfermedades cardiovasculares por la razón cintura/estatura. **Conclusión:** El estudio ha identificado los adultos jóvenes, eutróficos y con riesgo de enfermedad cardiovascular como dependientes químicos y asociación significativa de la razón cintura/estatura con la edad y la utilización de cocaína.

Descritores: Consumidores de Drogas; Drogas Ilícitas; Factores de Riesgo.

INTRODUCTION

Chemical dependency is a chronic pathology capable of altering an individual's organic functions and leading to physical and behavioral changes⁽¹⁾. The increase in drug use is worrisome because of the increasing amount of chemically dependent persons and has become a public health issue⁽²⁾.

According to the United Nations Office on Drugs and Crime (UNODC), circa 247 million people aged 15-64 worldwide have already used some illicit substance. Men stand out and show preference for cannabis, cocaine and amphetamines⁽³⁾. In Brazil, data from the Second National Alcohol and Drug Survey (*Levantamento Nacional de Álcool e Drogas – LENAD*) show that the most commonly used substance among adults is marijuana (5.8%), followed by cocaine (3.8%), stimulants (2.7%) and crack cocaine (0.7%)⁽⁴⁾.

To assist chemically dependent persons, the Ministry of Health, through the National Policy on Mental Health, Alcohol and Other Drugs, has enabled the implementation of specialized centers for the treatment of users of alcohol and other drugs. The reference for care is the Psychosocial Care Network, which promotes harm reduction actions in conjunction with health care networks, such as Primary Health Care centers, Psychosocial Care Centers, Emergency Centers and others⁽⁵⁾.

The Alcohol and Drug Abuse Psychosocial Care Center (*Centro de Atenção Psicossocial em Álcool e Drogas - CAPS AD*) serves people of all ages in psychological distress due to use of crack cocaine, alcohol and other drugs in municipalities or regions that have more than one hundred and fifty thousand inhabitants⁽⁶⁾. It offers strategic and comprehensive care through the Unified Health System (*Sistema Único de Saúde - SUS*) and has a multidisciplinary team. The patients participate in group meetings and get individual care, medical appointments and therapeutic workshops⁽⁵⁾.

The use of psychoactive drugs leads to disorders caused by the action of the substance and hereditary, environmental and compulsory factors and changes according to the type of drug and age⁽⁷⁾. These substances

alter the central nervous system (CNS) and make people susceptible to diseases, especially those related to the cardiovascular system⁽⁸⁾. Cocaine is associated with several cardiovascular diseases (CVD), such as hypertension, myocardial infarction, tachyarrhythmias, aortic dissection, heart failure, vasospasm and accelerated atherogenesis due to infarction⁽⁹⁾.

Cocaine abuse is one of the main issues in public health services because of cardiovascular symptoms⁽¹⁰⁾. In call cases involving cocaine use, 39.5% of the individuals complain of acute chest pain and acute myocardial infarction. About 2 to 7% of these cases refer to acute chest pain caused by illicit substance use, with cocaine accounting for 25% of the causes of infarction among people aged 18-45 years⁽⁹⁾.

Due to the exposure of chemically dependent persons to heart disease, it is of fundamental importance for health promotion to assess the cardiovascular risk factors of this population group. In considering the damage caused by addiction, the aim of the study was to assess cardiovascular risk in users of an Alcohol and Drugs Psychosocial Care Center.

METHODS

A retrospective and analytical study was carried out in a CAPS AD located in the city of São Luís, Maranhão, Brazil, which serves people of different ages with psychiatric disorders resulting from the use of crack cocaine, alcohol and other drugs. Data were collected from March to April 2018 from medical records of patients undergoing treatment for chemical dependency from 2015 to 2017.

The nonprobability sample included 122 records of adult men. The medical records of individuals who used only alcohol were not included in the study because the research focused on users of illicit psychoactive drugs.

The form used for data collection contained questions about socioeconomic and demographic aspects, lifestyle, history of chemical dependency, type of drug used, age of onset of use, treatment duration, reason for hospitalization and type of treatment. In addition to anthropometric data on weight and height used to calculate the Body Mass Index (BMI), data on waist circumference (WC) and hip circumference (HC) were collected from medical records.

Demographic, socioeconomic and lifestyle variables were categorized into age (20-39 years and 40-59 years), marital status (with or without a partner), education (incomplete or complete primary education, incomplete or complete secondary education, and incomplete higher education or graduate education) and physical activity (yes or no).

With regard to history of chemical dependency, the following aspects were considered: substances that users have already used (alcohol, tobacco, glue, marijuana, inhalants and solvents, *loló* (a blend of ether and chloroform), cocaine, crack cocaine and *merla* (a muddy preparation containing cocaine and a high proportion of solvents, especially acids, sometimes combined with different organic solvents)), age of onset of use (<12 years, 12-15 years, 15-18 years, 18-21 years, >21 years), the treatment duration (up to 1 month, 1-6 months, >6 months) and the reason for hospitalization (alcohol and drug addiction and drug addiction).

BMI classification was based on the cutoff values recommended by the World Health Organization⁽¹¹⁾. According to the Brazilian Association for the Study of Obesity and Metabolic Syndrome⁽¹²⁾, men with WC≥94cm are at an increased risk of CVD and those with WC≥102cm are at a highly increased risk of CVD.

The waist-to-height ratio (WHtR) indicates cardiovascular risk when the value is equal to or above 0.52. The conicity index (CI) was calculated considering the formula $WC (cm) / [0.109 \times (body\ weight (kg) / height (m))]$ and the cutoff value was ≥ 1.25 ⁽¹³⁾. Waist-hip ratio (WHR) was calculated considering the ratio of WC (cm) and HC (cm) and values above 0.95 for were considered high for men⁽¹⁴⁾.

Data analysis and tabulation were performed using Stata® version 13.0. The analysis of qualitative variables was performed by calculating frequencies and the multivariate analysis was performed using Poisson regression. A multiple model was built with all the variables associated with the event of interest with statistical significance of up to 20%. To accept the associations investigated in the final model, p value was set at <0.05. The outcome variable was the WHtR and the independent variables were the socioeconomic and demographic status and the history of drug use.

This study was approved by the Research Ethics Committee (REC) of the Ceuma University (*Universidade Ceuma - UNICEUMA*) (Approval No. 2.519.436).

RESULTS

A total of 122 medical records of chemically dependent persons were analyzed and 73% (n=89) of the patients were aged 20-39 years, 79.5% (n=97) lived without a partner and 49.2% (n=60) had either complete or incomplete primary education. As for lifestyle, 62.3% (n=76) of the chemically dependent persons did physical activity (Table I).

Table I - Socioeconomic, demographic and lifestyle characteristics of users of an Alcohol and Drug Psychosocial Care Center. São Luís, Maranhão, 2018.

Variables	n	%
Age (years)		
20 – 39	89	73
40 – 59	33	27
Marital status		
Without a partner	97	79.5
With a partner	25	20.5
Education		
Complete primary education	60	49.2
Incomplete primary education		
Complete secondary education	52	42.6
Incomplete secondary education		
Complete higher education	10	8.2
Incomplete higher education		
Physical activity		
Yes	76	62.3
No	46	37.7
Total	122	100

As for history of chemical dependency, 63.1% (n=77) of the patients were addicted to both alcohol and drugs, 62.3% (n=76) had attended CAPS AD for 1-6 months for treatment and 64% (n=78) of the chemically dependent persons started drug use at ages 12-18 (Table II).

Table II - History of chemical dependency among users served at na Alcohol and Drug Psychosocial Care Center. São Luís, Maranhão, 2018.

Variables	n	%
Reason for hospitalization		
Addiction to alcohol and drugs	77	63.1
Addiction to drugs	45	36.9
Treatment duration		
Up to 1 month	5	4.1
1 - 6 months	76	62.3
> 6 months	41	33.6
Age of onset of drug use		
< 12 years	15	12.3
12 - 18 years	78	64
>18 years	29	23.7
Total	122	100

With regard to the substances that patients have already used, crack cocaine was the most commonly used psychoactive substance (84.3%, n=102), followed by marijuana (80.2%, n=97), alcohol (77.7%, n=94), *merla* (48.8%, n=59), cocaine (40.5%, n=49), tobacco (28.1%, n=34), glue/solvents (5.0%, n=6) and *loló* (2.5%, n=3).

Table III shows the anthropometric characteristics of the participants. According to BMI values, 54.9% (n=67) of the individuals were at normal weight. However, according to WC and WHtR values, 18.0% (n=22) and 17.2% (n=21) of the individuals were at risk of CVD, respectively. WHR values suggested that 33.6% (n=41) of the individuals were at risk of CVD and CI values showed that 41.8% (n=51) of the individuals remained at risk of developing CVD.

Table III - Anthropometric characteristics of users served at an Alcohol and Drug Psychosocial Care. São Luís, Maranhão, 2018.

Variables	n	%
BMI		
Normal weight	67	54.9
Overweight	37	30.3
Obesity	18	14.8
WC		
No risk of CVD	100	82.0
Risk of CVD	22	18.0
WHtR		
No risk of CVD	101	82.8
Risk of CVD	21	17.2
WHR		
No risk of CVD	81	66.4
Risk of CVD	41	33.6
CI		
No risk of CVD	71	58.2
Risk of CVD	51	41.8
Total	122	100

BMI: body mass index; WC: waist circumference; WHtR: waist-to-height ratio; WHR: waist-hip ratio; CI: conicity index; CVD: cardiovascular diseases

Being between 40 and 59 years old (OR 4.13; 95%CI: 1.54 - 11.05), having a partner (OR 2.30; 95%CI: 0.81 - 6.52) and using cocaine (OR 2.88; 95%CI: 1.09 - 7.62) were associated with WHtR (Table IV).

Table IV - Unadjusted analysis of the association of socioeconomic and demographic characteristics and substance used with waist-to-height ratio (WHtR) among users served at an Alcohol and Drug Psychosocial Care Center. São Luís, Maranhão, 2018.

Variable	Waist-to-height ratio (WHtR)		
	OR	95%CI	p-value
Age (years)			
20-39	1	-	1
40-59	4.13	(1.54-11.05)	0.005
Marital status			
Without a partner	1	-	1
With a partner	2.30	(0.81-6.52)	0.116
Substance used - cocaine			
No	1	-	1
Yes	2.88	(1.09 - 7.62)	0.032

WHtR: waist-to-height ratio; OR: odds ratio; CI: confidence interval

Finally, Table V shows the adjusted analysis. Ages 40-59 (OR = 4.40; 95%CI: 1.52-12.75) and cocaine use (OR = 3.27; 95%CI: 1.15 - 9.27) remained associated with WHtR as risk factors.

Table V - Adjusted analysis of the association of socioeconomic and demographic characteristics and substance used with waist-to-height ratio (WHtR) among users served at an Alcohol and Drug Psychosocial Care Center. São Luís, Maranhão, 2018.

Variable	Waist-to-height ratio (WHtR)		
	OR	95%CI	p-value
Age (years)			
20-39	1	-	1
40-59	4.40	(1.52-12.75)	0.006
Marital status			
Without a partner	1	-	1
With a partner	1.39	(0.44-4.34)	0.568
Substance used - cocaine			
No	1	-	1
Yes	3.27	(1.15 – 9.27)	0.025

WHtR: waist-to-height ratio; OR: odds ratio; CI: confidence interval

DISCUSSION

In the present study, age and cocaine use were significantly associated with WHtR in both the unadjusted and adjusted analyses. It is noteworthy that the assessment of CVD risk factors using the WHtR parameter in chemically dependent person is scarce in the literature.

The WHtR is a parameter often used as a practical and simple indicator to detect cardiovascular risk⁽¹⁵⁾ and is an important prognosis in different age groups⁽¹³⁾. Its use contributes beneficially to public health⁽¹⁶⁾ as it is a rapid screening method that is easy to apply and interpret and that provides relevant and reliable results⁽¹⁷⁾.

CVDs are among the leading causes of death worldwide and generate considerable social and economic spending⁽¹⁸⁾. In Brazil, the cost of these diseases was R\$ 56.2 billion in 2015⁽¹⁹⁾. Between 2008 and 2014, 6.7/1,000 adult men were hospitalized due to systemic arterial hypertension⁽²⁰⁾.

Hypertension stands out as one of the comorbidities that affect users of alcohol and other drugs and it favors the onset of CVD⁽²¹⁾. Cocaine is mainly related to cardiovascular complaints manifested through infarction, hypertension, tachycardia, chest pain and strokes⁽⁹⁾. In Brazil, diseases of the circulatory system are the leading cause of death and account for nearly 28% of deaths, 26% of which are among men⁽²²⁾.

In order to have a closer look at men's health, the Ministry of Health published the National Policy on Men's Comprehensive Health Care (*Política Nacional de Atenção Integral à Saúde do Homem – PNAISH*) in conjunction with the National Primary Health Care Policy, which provide for men's health promotion because they are more susceptible to morbidity and mortality and reluctant to seek medical care, which results in increased morbidities, delays in care and high cost to the population⁽²³⁾. However, the PNAISH should promote actions targeted at drug users given the increasing number of chemically dependent men who become susceptible to CVD and mental disorders, thus constituting a public health problem.

In this context, the National Mental Health Policy provides for care strategies and guidelines for patients and families suffering from mental disorders, including those caused by chemical dependency. Within the SUS, care is offered in the Psychosocial Care Network (*Rede de Atenção Psicossocial – RAPS*), which promotes its insertion in care networks of different complexities⁽²⁴⁾.

In the present study, most chemically dependent men were young adults, lived without a partner and had either complete or incomplete primary education. Similar results have been shown in several studies⁽²⁵⁻²⁷⁾.

In a study conducted in a therapeutic community in the municipality of Frederico Westphalen, Rio Grande do Sul, with 14 chemically dependent men, 57% of the participants were aged 20 to 39 years and 57.1% were single⁽²⁵⁾.

There has been an increasingly earlier onset of drug use⁽²⁸⁾. According to the United Nations (UN) report, drug use is higher among men⁽³⁾. The fact that most users are single may result from the influence of the inversion of values that arise when facing the circumstances of drugs as chemically dependent people prioritize substance use⁽²⁹⁾.

The low level of education of the users analyzed in the present study resembles that reported by a study conducted in the state of Rio Grande do Sul with 1,469 records of chemically dependent persons served at an outpatient clinic where 42.7% of the patients had incomplete primary education⁽³⁰⁾.

The low level of education can be explained by the early onset of learning disabilities resulting from drug use in which the substances act on the CNS causing cognitive impairments related to reasoning⁽³⁰⁾.

As for physical activity, the chemically dependent men analyzed in this study used to do some kind of physical activity. Similar finding was reported in a study that aimed to analyze the effects of physical activity on the treatment of chemically dependent people. Thirty men aged 18-35 years who were treated in a therapeutic community in the countryside of São Paulo were interviewed and 30% of them reported walking, playing and stretching⁽³¹⁾.

Chemically dependent people receiving treatment undergo various interventions, including therapeutic workshops in which physical activity is required as determined by the National Conference on Mental Health Reports. Thus, the CAPS needs a Physical Educator in its multidisciplinary team as this professional is indispensable for such activities⁽³²⁾. In addition, physical activity provided by the CAPS-AD assists in the treatment by favoring social reintegration and cognitive, emotional and behavioral development of users⁽³³⁾.

Most users analyzed in the present study were addicted to alcohol and other drugs. A similar finding was reported in a cross-sectional study that assessed dropout in outpatient drug treatment in Rio Grande do Sul using secondary data collected from 2012 to 2014 from 593 medical records of chemically dependent people. The study found that the highest percentage of chemically dependent people sought care because they used multiple drugs⁽³⁴⁾.

A systematic review study showed the association of crack use with the use of marijuana, alcohol, heroin and cocaine. Drug users usually use multiple drugs, that is, they start with alcohol, tobacco and marijuana, or with a simultaneous use of these substances⁽³⁵⁾.

The treatment of most of the participants in the present study lasted 1-6 months. A study that assessed changes perceived by active users who had been attending the Center for more than six months found that 31.6% of the participants reportedly attended CAPS-AD for a period of 1-2 years⁽³⁶⁾. Therefore, there is evidence of treatment abandonment among chemically dependent persons⁽³⁷⁾.

This study shows that the onset of drug use occurred in adolescence. This finding is similar to that of a study conducted with crack cocaine users assessed at an Addiction Center in the city of Porto Alegre, where the mean age of onset of substance use was 21.5 ± 6.1 years⁽³⁸⁾.

The 2009-2011 Emergency Plan to Expand Access to Treatment and Prevention of the Use of Alcohol and Other Drugs (*Plano Emergencial de Ampliação do Acesso ao Tratamento e Prevenção em Álcool e outras Drogas – PEAD*) provides for health promotion and disease prevention focused on illicit drug use, which is growing among children and adolescents. In this phase of life, young people find it difficult to accept guidance from their parents. They seek control of their own lives and hence move away from their families. The easy access to and the marketing of crack cocaine favor the law of supply and demand⁽³⁹⁾.

Crack cocaine was the most commonly used drug among the substances that the patients analyzed in this study have already used. However, a study conducted in a CAPS-AD in Curitiba showed that alcohol was the most commonly used substance in 71.2% of the participants⁽²⁷⁾.

In the present study, the chemically dependent persons were at normal weight and at risk of CVD. A different finding was reported in a study that aimed to identify the nutritional status of male adult drug users attending a chemical dependency outpatient clinic in southern Brazil, where 88% of the participants exhibited excess weight and similar high risk of CVD according to WC⁽²⁶⁾.

A study conducted with chemically dependent persons in the first 24 hours of hospitalization found a higher percentage of underweight⁽⁴⁰⁾. These differences may have happened due to the absence of a protocol regarding the time when the anthropometric assessment should be done in CAPS-AD.

The cardiovascular risk indicators used in the present study (CI, WHR, WC and WHtR) showed a risk of developing CVD. The literature shows that anthropometric indicators express cardiovascular risk better and that the WHtR is a good indicator for obese individuals⁽¹³⁾.

The present study had limitations regarding data collection due to missing information in the records, duplicate data and divergent information in the medical records. Moreover, it addresses a subject on which there are few studies.

One of the strengths of the present study is the finding related to the little studied association between WHtR and drug use, which contributes to the dissemination of the subject in the literature. The finding of the present study show that anthropometric indicators can be used to identify the risk of CVD in chemically dependent persons. They

are non-invasive and low-cost methods that allow a quick diagnosis and immediate interventions that may contribute to disease prevention, thereby impacting on health promotion and minimizing public spending.

CONCLUSION

The present study identified normal weight young adult chemically dependent men at risk of cardiovascular disease and a significant association of waist-to-height ratio with age and cocaine use.

CONFLICTS OF INTEREST

There are no conflicts of interest.

CONTRIBUTIONS

Kamylla Karolynne Bezerra Pontes and **Eliziane Gomes da Costa Moura da Silva** contributed to the study conception and design. **Ester Barbosa Soares**, **Adrielle Zagnignan**, **Izabela Correa Costa** and **Virgínia Nunes Lima** contributed to the writing and/or revision of the manuscript. **Alexsandro Ferreira dos Santos** contributed to the acquisition, analysis and interpretation of data. **Janaína Maiana Abreu Barbosa** contributed to the study conception and design, acquisition, analysis and interpretation of data, and writing and/or revision of the manuscript.

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