

Theoretical and practical dimensions in nursing education: beliefs and attitudes related to alcoholism

Marcus Luciano de Oliveira Tavares¹
Amanda Márcia dos Santos Reinaldo²
Belisa Vieira da Silveira³

Objective: Identify the beliefs and attitudes of nursing students in regard of the treatment of alcohol addicted patients. **Method:** Quantitative, descriptive research developed with 117 nursing students of a public university. The “Attitudes and Beliefs About Alcoholism” scale was used. **Results:** The students understand the nurse’s importance in the early diagnosis of signs and symptoms of alcoholism, its abstinence and welfare possibilities for the area, but feel unprepared and insecure facing this multidisciplinary phenomenon that is alcoholism. **Conclusion:** A need for further theoretical and practical inclusion about the use of alcohol and other drugs is seen in the nursing curriculum.

Descriptors: Alcoholism; Students, Nursing; Health Knowledge, Attitudes, Practice; Nursing.

¹ Master’s student, Escola de Enfermagem, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

² Associate Professor, Escola de Enfermagem, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

³ MSc, Professor, Centro Universitário Una, Belo Horizonte, MG, Brazil.

Corresponding Author:

Marcus Luciano de Oliveira Tavares
Universidade Federal de Minas Gerais. Escola de Enfermagem
Av Professor Alfredo Balena, 190, sala 422
CEP: 30130-100, Belo Horizonte, MG, Brasil
E-mail: tavares_mlo@yahoo.com.br

Dimensões teórico-práticas na formação do enfermeiro: crenças e atitudes relacionadas ao alcoolismo

Objetivo: Identificar as crenças e atitudes de estudantes de enfermagem em relação ao tratamento de pacientes alcoolistas. Método: Pesquisa quantitativa, descritiva, desenvolvida com 117 estudantes de enfermagem de uma universidade pública. Utilizou-se a escala de “Atitudes e Crenças Sobre o Acoolismo”. Resultados: Os estudantes compreendem a importância do enfermeiro no diagnóstico precoce dos sinais e sintomas do alcoolismo, da abstinência e das possibilidades assistenciais para a área, mas se sentem despreparados e inseguros frente ao fenômeno multidisciplinar que é o alcoolismo. Conclusão: Percebe-se a necessidade de maior inserção teórico-prática acerca do uso de álcool e outras drogas no currículo de enfermagem.

Descritores: Acoolismo; Estudantes de Enfermagem; Conhecimentos, Atitudes e Prática em Saúde; Enfermagem.

Dimensiones teórico-práticas en la formación del enfermero: creencias y actitudes relacionadas con el alcoholismo

Objetivo: Identificar las creencias y actitudes de los estudiantes de enfermería en relación con el tratamiento de los pacientes alcohólicos. Método: Estudio cuantitativo, descriptivo desarrollado con 117 estudiantes de enfermería de una universidad pública. Se utilizó la escala para “Actitudes y creencias sobre el alcoholismo”. Resultados: Los estudiantes comprenden la importancia del enfermero en la detección precoz de los signos y síntomas de alcoholismo, abstinencia y de las oportunidades asistenciales en esta área, pero se sienten sin preparación e inseguros frente al fenómeno multidisciplinar que es el alcoholismo. Conclusión: Se percibe la necesidad de una mayor inclusión teórico-práctica sobre el uso de alcohol y otras drogas en el plan de estudios de enfermería.

Descriptor: Alcoholismo; Estudiantes de Enfermería; Conocimientos, Actitudes y Práctica en Salud; Enfermería.

Introduction

The use and abuse of alcohol is a current, recurrent and responsible problem for diseases that affect society. Alcoholism is defined by the World Health Organization (WHO) as a disease and in its report on the world alcohol situation, alcohol accounted for about 3.3 million deaths, equivalent to 5.9% of deaths in the world in 2012. This high percentage comes from the consequences caused

by alcohol such as cancer, diabetes, cardiovascular and neuropsychiatric diseases, as well as interpersonal and traffic violence⁽¹⁻²⁾.

People in abusive use of alcohol and other drugs are stigmatized. This characteristic is responsible for the worsening of health status and social impact to users. This stigma often results from a lack of knowledge about the disease and its complexity⁽³⁾. Thus, it is common for contiguous ethyl consumption to still be seen as a

fragility of character and self-control, which changes the mode of use it - from social and aggregator to individual and vexatious - due to the stigmatizing load inflicted on the user. In this way, preventive actions to use are necessary to reduce the imaginary, real and social impact of alcoholism.

The evaluation of the implementation of health prevention programs points to the importance of the human aspect regarding the attitudes, beliefs, and expectations of health professionals in the practice of the new proposals of attention to the health of the people and their ways of life. Studies that contemplate this theme are rare in our country⁽⁴⁾. Therefore, it is necessary that such a theme be approached in the professional training of the health area since graduation, so the worker initiates the reflective process on their representations about health situations and vulnerability to minimize the possible impact of such beliefs on patient care.

Nurses are one of the largest groups of health professionals. Its assistance is provided to patients in general, including users of psychoactive substances in various sectors of a health system. Therefore, it is assumed that they should be able to assess their own beliefs and attitudes towards alcoholism to develop human care and without judgments of value. However, as studies on the subject show, these professionals lack training on the subject since their training, which directly reflects the assistance offered, loaded with stigma and moral values^(3,5-6).

Assessments of the beliefs and values involved in caring are critical to quality care. For this reason, it is necessary to include a conscious evaluation of this need in the nurse's practice. However, given the magnitude of the problem, little is known about nurses' attitudes (to think, feel and behave) in relation to patients who use alcohol and drugs. Besides being scarce and current studies, the literature also shows that the training (continuing education) or even formal education with this theme have been little explored in nursing undergraduate curricula, and they are considered indispensable in the training of nurses, offering qualified assistance to this population^(4,7-8).

Due to the problems involving alcohol use and abuse and to the commitment of nurses to alcoholic patients due to the fragility of their education, this study chose to identify the beliefs and attitudes of nursing students regarding the treatment of patients alcoholics.

Methods

This is quantitative and descriptive study developed in a nursing school of a public university in the state of Minas Gerais, Brazil. As inclusion criteria, it was decided to include all the students regularly enrolled in the last two periods of the undergraduate nursing course and who wish to participate in the research. The sample consisted of 117 students.

The data were collected from March to July 2013. The research team is made up of scholarship students of Scientific Initiation.

As a tool for data collection, the scale of "Attitudes and Beliefs about Alcoholism" validated in Brazil was used. It was developed by the Alcohol Education project of the NEADA - Nursing Education in Alcohol and Drug Education, this scale is composed by variables which were developed from the authors' professional experience to work with alcoholic patients. It aims to evaluate nurses' perceptions regarding alcohol use, making a total of 30 evaluations, divided into 5 (five) dimensions: I - Nurses' perception regarding the theoretical concepts about alcohol use and dependence, II - Nurses' perception regarding the privacy of the alcoholic patient, III - Nurses' perception regarding professional and personal feelings about working with alcoholics, IV - Nurses' perception regarding the professional preparation to work with this population, V - Perception of nurses in the nursing interventions used for these problems.

The scale was structured with "Likert" type responses, being rated 1 - strongly agree; 2 - agree; 3 - indifferent; 4 - disagree; 5 - I strongly disagree. It was decided during the analysis to group the alternatives into three only items: agree, indifferent and disagree to promote a more concise view of the data and to provide greater consistency to the results.

Information about the gender and age of the participants was collected to characterize the sample.

The data analysis process was performed through the following steps: creation of a database and insertion of the data by double typing; verification of data consistency; data analysis using descriptive statistics. Epi Info (version 7.1.5.2) and Data Analysis and Statistical Software - STATA (version 11.1) were used throughout the process.

The research was approved by the Research Ethics Committee with human beings of the Federal University of Minas Gerais (UFMG), Opinion number 0107.0.203.000-11.

Results

In the sample studied, students are predominantly female (88%), with a median age of 25 years old, with a minimum of 22 and a maximum of 36. In Table 1, data are presented on students' perceptions regarding

knowledge of concepts theorists related to alcohol and alcoholism. Emphasis was placed on the variable "It is important for nurses to be able to distinguish problems arising from alcohol use" (96.6%), where almost all students agreed with this statement.

Table 1 - Perceptions of students in the theoretical concepts (n = 117), MG, Brazil, 2013

Variables	Agree		Indifferent		Disagree	
	n	%	n	%	n	%
There is a difference between heavy drinking and alcoholic beverage	81	69,2	8	6,9	28	23,9
Organic and psychological problems appear in both alcoholics and heavy drinkers	92	78,6	7	6	18	15,4
Social problems related to alcohol use appear in both alcoholics and heavy drinkers	84	71,8	4	3,4	29	24,8
Drinking and shaking hands are signs of alcohol dependence	44	37,6	18	15,4	55	47
You can drink half a bottle of alcohol a day and not be an alcoholic	29	24,8	17	14,5	71	60,7
It is important for nurses to be able to distinguish problems arising from the use of alcohol	113	96,6	1	0,8	3	2,6

Table 2 shows the variables related to the preparation for working with alcoholics. It is noted that the learning about alcoholism at graduation (86.3) was considered inappropriate by most students. Also, the variable that

affirms the need to give more emphasis to the theoretical and practical experience on alcoholism in the School of Nursing (94.8%) was highlighted.

Table 2 – Students' perceptions regarding preparation for working with alcoholics (n = 117), MG, Brazil, 2013

Variables	Agree		Indifferent		Disagree	
	n	%	n	%	n	%
My learning about alcoholism at graduation was adequate.	6	5,1	10	8,6	101	86,3
I'm not prepared to talk about problems related to alcoholism	57	48,7	20	17,1	40	34,2
It would be necessary to give more emphasis to the theoretical and practical experience on alcoholism in the School of Nursing	111	94,8	3	2,6	3	2,6
My perception of alcoholism changed a lot after I joined nursing	34	29,1	42	35,9	41	35
During my course of nursing, I learned to understand the difficulties of patients to talk about the use of alcohol	31	26,5	28	23,9	58	49,6
After I enrolled in the nursing course, I feel able to deal with problems related to alcoholism	9	7,7	19	16,2	89	76,1

Table 3 identifies students' perceptions regarding the privacy of the alcoholic user. In this dimension, almost all students disagreed with the variables: "it is not the job of the nurse to question alcohol consumption with alcoholics" (96.6%), "I consider it an invasion

of privacy to talk about the use of alcohol with the patient" (97.4%) and "it is not the job of the nurse to question about such particular issues as the use of alcohol" (99.2%).

Table 3 – Students' perceptions regarding privacy (n = 117), MG, Brazil, 2013

Variables	Agree		Indifferent		Disagree	
	n	%	n	%	n	%
It is not the job of the nurse to question alcohol consumption with alcoholics	3	2,6	1	0,8	113	96,6
I consider it an invasion of privacy to talk about the use of alcohol with the patient	-	-	3	2,6	114	97,4
I think patients are upset when asked about alcohol use	70	60,4	15	12,9	31	26,7
I think patients are inhibited when asked about alcohol use	84	71,8	7	6	26	22,2
I think patients are not available to be asked about alcohol use	15	12,8	10	8,6	92	78,6
It is not the job of the nurse to question about such particular matters as the use of alcohol	-	-	1	0,8	116	99,2
The nurse has adequate information for the patient when he/she realizes that the patient has problems with alcohol	41	35	12	10,3	64	54,7

The students' perceptions regarding the nursing intervention to alcoholic patients are described in Table 4. Through it, it can be perceived expressive values of concordance in the variables that consider that people who drink can also be helped by the nurse to change their habit (96.6%) and that the diagnosis of alcohol

abstinence syndrome in its early stages can help with successful treatment (91,5). Students disagree that nursing history is not necessary to assess problems of alcoholism (95.7%) and that patients who drink heavily should not receive counseling to reduce drinking (94%).

Table 4 – Student' perceptions regarding nursing intervention (n = 117), MG, Brazil, 2013

Variables	Agree		Indifferent		Disagree	
	n	%	n	%	n	%
People who drink can also be helped by the nurse to change their drinking habit	113	96,6	1	0,8	3	2,6
The best way for the nurse to intervene with the patient is to direct him to a good treatment program	50	42,8	41	35	26	22,2
The diagnosis of alcohol abstinence syndrome in its early stages can help with successful treatment	107	91,5	8	6,8	2	1,7
The nurse can interfere with the patient only when he or she notices some signs or symptoms of the disease	11	9,4	8	6,8	98	83,8
Nursing history is not necessary to evaluate the problems of alcoholism	2	1,7	3	2,6	112	95,7
The best path chosen by the nurse is to refer them to the group of Alcoholic Anonymous	10	8,6	24	20,5	83	70,9
Patients who drink heavily, are not alcoholics, should not receive counseling to reduce drinking	4	3,4	3	2,6	110	94

Table 5 shows the students' opinions about the feeling they have when working with alcoholics. It is important to emphasize the expressive percentage of students

who disagreed about the alcoholic who does not obey the guidelines given by the nurse, should be treated with indifference (98.3%).

Table 5 – Students' perceptions regarding the feeling of working with alcoholics (n = 117), MG, Brazil, 2013

Variables	Agree		Indifferent		Disagree	
	n	%	n	%	n	%
I prefer to work with alcoholics to other types of patients	4	3,4	79	67,5	34	29
The alcoholic who does not obey the instructions given by the nurse must be treated with indifference	-	-	1	0,9	115	99,1
Although I can help the alcoholic, he can still continue drinking	87	74,4	12	10,2	18	15,4
Alcoholics deserve a place in the hospital like any other patient	83	70,9	22	18,8	12	10,3

Discussion

Unknowing is considered to be the source of negative beliefs and attitudes. It prevents man from arousing his critical judgment on a particular subject. In terms of the repercussion that alcohol has on the user's life in harmful use, ignorance is pointed out as a source of prejudice, stigma, and inability to deal with the problem. Table 1, which expresses the opinions of nursing students about theoretical knowledge about alcohol and alcoholism, shows that most (96.6%) agree that it is important for nurses to be able to distinguish problems arising from use of alcohol. This corroborates with data from the literature, which point out that the formal preparation that the nurse receives during graduation positively influences the management of alcoholic patients⁽⁹⁻¹⁰⁾.

The previous preparation during graduation or in a post-graduation was pointed out as predictors for positive attitudes when working with alcoholic patients⁽¹⁰⁾. Also in Table 1, it was possible to perceive that to know the differences between the types of alcohol users (frequent and sporadic), to recognize the social aggravations resulting from the abuse and to know the organic and psychological problems resulting from alcohol use were pointed out by more than half of the sample as information of their knowledge. This is seen as a positive thing, because as the literature recommends, it is necessary that students, even in undergraduate studies, have prior knowledge to offer quality assistance to these users⁽⁹⁻¹⁰⁾.

Preparing to work with alcoholics is a process that should begin with formal education during graduation. The feeling of insecurity may come from the theoretical unpreparedness and from the load of moral content that the student carries of the alcohol user. It is worrying to note that more than three-quarters of the sample disagree that learning about alcoholism at the undergraduate level was adequate. This result justifies the others, which reveal that students say they do not feel empowered to talk and deal with problems related to alcoholism, as explained in Table 2⁽⁷⁻⁸⁾.

Corroborating with the data revealing the students' lack of preparation, an expressive percentage of students who agreed with the need to emphasize practical theoretical teaching about alcoholism during the undergraduate course is observed (94,8%). In a similar study conducted with nursing students, the authors suggested that negative attitudes toward alcoholism are largely due to the unsatisfactory preparation these students have during graduation. The same authors suggest the need to address the issue in nursing curricula^(8,11).

Also on the preparation to work with alcoholic patients, a high frequency of "indifferent" answers can be observed. This result was found in another study in which the authors suggest that it is a consequence of the lack of knowledge regarding alcohol and alcoholism. The same authors also risk another explanatory factor for this situation: "the difficulty that these students have to assume their real attitudes, as more comfortable to put themselves in neutral positions or without a formed opinion"⁽¹¹⁾. However, the absence of positioning against a phenomenon is unreal and impossible. By staying neutral or impartial, the individual tends to corroborate with the dominant ideology, because it is more widespread and it has a greater social weight. Therefore, when being "indifferent" to care, the student covenants with the social imagery of abusive use of alcohol, privileging the use and not the nuances of the subject using it.

Another relevant aspect evidenced by Table 2 is a significant part of the students pointed out that beliefs regarding alcoholism did not change after graduation (76.1%). The inadequate development of theoretical-practical skills related to alcoholism supports and consolidates the previous social imaginary regarding drug use and abuse.

The social imaginary consists of a collective historical-social construction that assumes real influence due to the subjective materiality occupied in a society. The imaginary absorbs memories, affections and daily perceptions of a given society, listing the subjects able to live within the considered normal to the group of people. Thus, concomitantly, he diagnoses the offenders of this social imaginary and marginalizes them unconsciously, projecting such an imaginary experience into reality. Permeated by affection, rational and irrational aspects, the imaginary gives rise to a solid image that will ground the practices⁽¹²⁾. Aware of such an imaginary, the alcoholic assumes a defensive behavior against the use, that is, hide from family and health professionals, inhibited when questioned about it due to the moral and social sanctions already received from the use, as explained in Table 3, where it can be seen that students agree on issues concerning patient discomfort in talking about the problem.

In socially stigmatized diseases and illnesses, it is common for the patient to be amazed to see in the other, something of his own subjectivity. Also, the reflection of the stigma experienced by the other focuses on the subject, which records the impact of the phenomenon on society and the significant changes of the other in the face of the patient⁽¹³⁾. In the case of users of psychoactive substances, it is common the embarrassment and, even, the denial when questioned about the use, by the

register of social stigma, as evidenced by the students of the research.

As it was already noticed in the results, a high percentage of students feel "indifferent" or unprepared to deal with the complexity of the problem related to alcoholism. In Table 4, the interviewed students point the referral to specialized services as the best treatment alternative (42.8%). A priori, this perception of the students is adequate since it contemplates the need for accompaniment by specialized professionals, such as psychiatrists, psychologists, social workers, among others. However, a more in-depth analysis demonstrates again the difficulty and insecurity by the students about alcohol abuse. Although 96.6% report that nurses can also help people with alcohol problems and that 95.7% disagree that nursing history is not necessary to assess alcoholism, students still choose to be referred.

In Brazil, the health policies directed to the care and service network to care for alcohol abusers are recent. Until recently, the subject in abusive use did not access the health system or, when he accessed it, was only to deal with the comorbidities arising from the use and not the reasons that lead to the use. Based on public health policies based on the territory, it is proposed that this subject be seen in its totality, complexity, and subjectivity⁽¹⁴⁾. Thus, it is up to the family health teams to welcome this user and treat it in their territory, considering the resources and available sociocultural and health devices. Thus, the referral to specialized services does not end the contact with the phenomenon, only postpones the creation of a link with the user in its area of coverage.

Also, regarding the Brazilian public policies, when analyzing that only 8.6% of the students believe that the best way is to refer to the Alcoholics Anonymous group service, there is a knowledge of the students regarding the alcohol user assistance policy and other drugs. Such an inference can be made since Brazilian policy, in line with the world trend in alcohol and other drugs, advocates Harm Reduction as a strategy to sensitize, approach and treat abusive users of alcohol by contemplating the manifestation of subjectivity, to respect the choices of use and to construct, together and at the same time, individually possible outputs for the reduction or interruption of its use⁽¹⁴⁻¹⁶⁾.

In Table 5, 74.4% of the students acknowledge that even with help, the alcoholic can still continue to drink. Therefore, it is perceived that there is the understanding that abstinence is not necessarily the focus of alcohol user assistance. To delegitimize the hidden power of drugs is to bet on the potentialities of the subject that makes use of it. Abrupt discontinuation of use may be more damaging than minor maintenance or frequency.

Thus, an imposed abstinence or abstinence syndrome are important clinical conditions that demand urgent care and support in hospital institutions. Also, alcohol abuse, as already explained, is related to several other comorbidities that require clinical follow-up⁽¹⁷⁾. The students corroborate this assertion since 70.9% showed that the alcoholic deserves a place in the hospital like any other patient.

Still referring to the data in Table 5, 99.1% of the students state that even the alcoholic not following the instructions given by the nurse, should not be treated with indifference. The clinic of chemical dependence is marked by frustrating situations for the professional, since, commonly, the user does not meet all the prescribed guidelines. For example, relapse to use is expected and is part of an alcohol user's treatment. Thus, it is not for the nurse to impress on the treatment and the user of alcohol their personal and moral expectations regarding their use, so failure to comply with such expectations does not entail indifference or punishment of the alcoholic⁽¹⁸⁻¹⁹⁾.

Conclusion

The relevance of the theme for the training of nurses is highlighted. It is identified the need for theoretical-practical insertion about the use of alcohol and other drugs in the nursing curriculum. Nursing students understand the importance of nursing professionals in the early diagnosis of signs and symptoms of alcoholism, abstinence and assistance possibilities for the area, but they feel unprepared and insecure in the multidisciplinary phenomenon that is alcoholism.

References

1. World Health Organization (WHO). Global status report on alcohol and health 2014. Geneva: World Health Organization; 2014. 377p.
2. Kanda K, Okamura T. The economic and medical costs of alcohol consumption in Japan. *West Indian Med J.* 2013 Dez; 62(9):785.
3. Pillon SC, Luis MAV, Laranjeira R. Nurses' training on dealing with alcohol and drug abuse: a question of necessity. *Rev. Hosp. Clin.* 2003;58(2):119-24.
4. Rosa MSG, Tavares CMM. A temática do álcool e outras drogas na produção científica de enfermagem. *Esc. Anna Nery Rev. Enferm.* 2008 Set;12(3):549-54.
5. Schomerus G, Lucht M, Holzinger A, Matschinger H, Carta MG, Angermeyer MC. The stigma of alcohol dependence compared with mental disorders: a review of population studies. *Alcohol alcohol.* 2010 Dez;46(2):105-12.

6. Cortes LF, Terra MG, Pires FB, Heinrich J, Machado KL, Weiller TH, et al. Atenção a usuários de álcool e outras drogas e os limites da composição de redes. *Rev Eletr En Rev. eletrônica enferm.* 2014 Jan/Mar;16(1):84-92.
7. Patel T, Brahmabhatt M, Patel P, Oza H, Vankar GK, Parmar M. Knowledge And Attitude Towards Alcoholism Among Nursing Students: An Interventional Study. *Int J Sci Res.* 2015 Jul;7(7):488-90.
8. Boulton MA, Nosek LJ. How do nursing students perceive substances abusing nurses? *Arch Psychiatr Nurs.* 2014 Feb;28(1):29-34.
9. Vargas D. Nurses's personal knowledge and their attitudes toward alcoholism issues: A study of a sample of specialized services in Brazil. *J Nurs Educ Pract.* 2014;4(2):123-31.
10. Soares J, Vargas D, Formigoni MLOS. Knowledge and attitudes of nurses towards alcohol and related problems: the impact of an educational intervention. *Rev. Esc. Enferm. USP.* 2013 Out;47(5): 1172-9.
11. Vargas D, Bittencourt MN. Álcool e alcoolismo: atitudes de estudantes de enfermagem. *Rev. bras. enferm.* 2013 Feb;66(1):84-9.
12. Rodríguez-Borrego MA, Nitschke RG, Prado ML, Martini JG, Guerra-Martín MD, González-Galán C. Theoretical assumptions of Maffesoli's sensitivity and Problem-Bases Learning in Nursing Education. *Rev. latinoam. enferm.* 2012 Maio/Jun; 22(3):504-10.
13. Arostegui MG, Rodríguez VP, Cabeza LP. La relación entre la percepción subjetiva del funcionamiento cognitivo y el autoestigma con la experiencia de recuperación de las personas com enfermedad mental grave. *Rev. Asoc. Esp. Neuropsiquiatr.* 2014 Jul-Set; 34(123):459-75.
14. Ministério da Saúde (BR). Guia estratégico para o cuidado de pessoas com necessidades relacionadas ao consumo de álcool e outras drogas: guia AD. Brasília, 2015.
15. Baldus C, Miranda A, Weymann N, Reis O, Moré K, Thomasius R. "Can Stop" – Implementation and evaluation of a secondary group prevention adolescent and young adult cannabis users in various contexts – study protocol. *BMC Health Serv Res.* 2011;11:80.
16. Chung T, Maisto S. "What I got from treatment": predictors of treatment content received and association of treatment content with 6-month outcomes in adolescents. *J. subst. abuse treat.* 2009;37(2):171-81.
17. Rahhali N, Millier A, Briquet B, Laramée P, Aballéa S, Toumi M et al. Modelling the consequences of a reduction in alcohol consumption among patients with alcohol dependence based on real-life observational data. *BMC Public Health.* 2015;15:1271.
18. Griffin BA, Ramchand R, Almirall D, Slaughter ME, Burgette LF, McCaffery DF. Estimating the causal effects of cumulative treatment episodes for adolescents using marginal structural models and inverse probability of treatment weighting. *Drug Alcohol Depend.* 2014 Mar; 136(1):69-78.
19. Ramo DE, Prince MA, Roesch SC, Brown SA. Variation in substance use relapse episodes among adolescents: a longitudinal investigation. *J. subst. abuse treat.* 2012 Jul; 43(1): 44-52.