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Original Article

Factors Influencing Suicidal Ideation in Korean Youth: A Secondary Data Study Using Longitudinal Data from the Korean Youth Panel Survey

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Abstract

Background: Suicide is one of the most serious social problems in Korea. We examined suicidal ideation factors among Korean youth.

Methods: For risk factor identification, data from the 2008 and 2018 Korean Youth Panel Survey were analyzed (n =6,568) using univariate multiple logistic regression analysis. Negative life events, feelings of hopelessness, early-life adversity, alcohol consumption, smoking, counseling experience, perceived stress, and current health status were independent variables, whereas suicidal ideation was the dependent variable.

Results: Proximal (negative life events and feelings of hopelessness), distal (early-life adversities significantly influenced suicidal ideation), and health-related (alcohol consumption, counseling experience, perceived stress, and current health status) factors significantly influenced suicidal ideation among Korean youth.

Conclusion: Mental health professionals must include distal risk factors, along with the common proximal and health-related risk factors, to provide targeted interventions.

Keywords: Suicide; Psychological trauma; Korean youth; Data study; Risk factors

Introduction

According to the 2019 Health Statistics Report of the Organization for Economic Cooperation and Development (OECD), the suicide rate in Korea is the highest among the OECD countries (24.6 deaths by suicide per 100,000 population). The 30-year trend of suicide mortality in OECD countries also reveals that suicide cases in Korea continue to increase, whereas they have decreased by approximately 30% in other OECD countries (1). While the age group with the highest number of suicides is generally known to be older adults (≥65 yr), the recent 30-year trend shows that the rate of increase in the number of suicides is highest among young people (<45 yr) in Korea (2). Moreover, comparing suicide deaths with deaths due to other causes, as shares of total deaths by life stage, reveals that suicide has been the leading cause of death among Korean youth in their 20s and 30s since 2007 (2). Therefore, to address the suicide problem in Korea, one of the

main focus areas of research and practice should be tackling suicide among Korean youth.

Suicide is the result of a complex interplay between distal and proximal factors over a lifetime; distal factors include genetic factors (e.g., family history and genetic disposition) and early-life adversities (e.g., parental divorce, conflict, death, and child abuse), whereas proximal factors include recent stressful events and negative emotional states (e.g., depression and anxiety) (3). In Korea, early-life adversity is a prevalent social problem; the number of divorces has increased by a factor of more than 10 over the past 50 years (i.e., from 11,615 in 1970 to 116,858 in 2010) (2). In Korea, people traditionally and culturally recognize physical punishment as a standard method of upbringing. Korea has a high tolerance for parental violence, with Korean parents even having the legal right to discipline their children through physical punishment (4); thus, a large proportion of young Koreans may have experienced child abuse in their childhood. Moreover, family violence may have traumatized them. Additionally, potentially owing to the widespread cultural acceptance of such behaviors, many young Koreans may not recognize that they were exposed to child abuse, possibly having grown up in total neglect and with constant exposure to violence (4). Korea is an academically high-performing country, where students are expected to take on fierce competition, spending up to 16 hours a day learning at school and in post-school settings to bring honor to their families by being admitted to prestigious universities (5). Accordingly, education in Korea ranks among the best in the world, with Korean students excelling in almost all international competitions; nonetheless, there is another side to these achievements—students often experience high levels of stress and anxiety, which many people define as a form of child abuse (5).

The complex and realistic problems faced by the younger generation of Koreans (e.g., widespread contingent work, relational poverty, and residential instability) delay their transition to adulthood by preventing them from accomplishing developmental tasks (6); this may be a substantial stressor that acts as a proximal factor for suicidal ideation among Korean youth. Moreover, physical and mental health problems are the major causes of suicidal ideation (7,8); people with poor physical health are more prone to suicide than those with good physical health (7). Furthermore, a systematic literature review has identified the following variables as influencing factors for suicidal ideation: substance abuse (i.e., alcohol and tobacco dependency), history of mental disorders, stress, and feelings of hopelessness (8).

Despite all this, there is a scarcity of literature explaining the causes for suicidal ideation in young Korean people using health-related, distal, and proximal variables. Hence, this study aimed to determine the influencing factors of suicidal ideation in Korean youth. Specifically, we aimed to provide a better explanation of suicidal behavior and provide directions for future endeavors related to the prevention of youth suicide in Korea.

Materials and Methods

Study design

This study was a secondary analysis of nationally representative data from the Korean Youth Panel Survey (2). We processed and analyzed raw data from the 2nd and 12th Youth Panel Survey, conducted in 2008 and 2018, respectively, after obtaining approval from Statistics Korea.

Participants

We obtained data for this study from the Youth Panel Survey, conducted annually by the Korea Employment Information Service; we used the questionnaire results released in 2020. The Youth Panel Survey is a longitudinal panel survey that follows the lives of young Koreans between ages 15 and 29, collecting data at yearly intervals regarding school life, social life, economic activities, and household background. For this study, we created a longitudinal database using the raw data of the 2008 cohort (the second year of the survey) that was followed up until 2018. Overall, 10,206 participants completed the longitudinal database.

Of these, the final analysis cohort comprised 6,568 young people, whose data included all the variables of interest for this study, such as early-life adversity. Participants without missing values were selected as the study population. This procedure allowed us to observe suicidal ideation trends within this sample (Fig. 1).

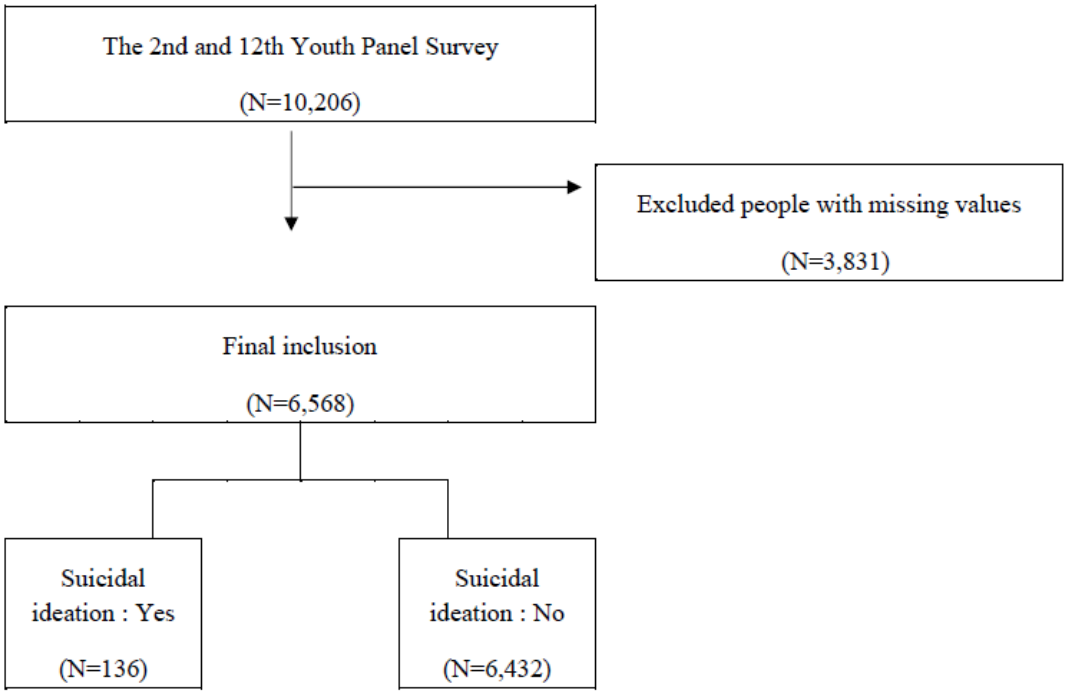

Fig. 1: Flow diagram of the inclusion and exclusion criteria of the study

Psychometric tools

Negative life events

We measured this variable using a six-item questionnaire that asked participants about life experiences over the preceding month. Questions included, "Have you ever felt something was unbearable and beyond your psychological or physical capacity?" Participants responded using a five-point Likert-type scale (1=never, 5=always).

Hopelessness

We measured this variable using the following "yes" or "no" question: "Have you ever felt sad or desperate enough to completely neglect your daily activities for two consecutive weeks, or longer, in the past 12 months?" If they answered "yes," it was considered to be indicative of feelings of hopelessness. These questions were a part of the questionnaire itself.

Early-life adversity

We assessed this variable based on "yes" or "no" answers. The eight-item questionnaire covered the following topics: "breakup with boy/girlfriend," "rejection by peers," "failure in college entrance exams," "death of a friend," "death of a family member (excluding parents)," "parental unemployment (including bankruptcy)," "parental divorce," and "parental death." In addition to the "yes" or "no" answers, participants were also instructed to indicate their age when they were exposed to each specific adversity; those who experienced adversities in their pre-adulthood period (i.e., ≤18 yr) were included in the analysis dataset for early-life adversity.

Alcohol consumption

We assessed this variable using the following question: "How often do you drink?" Participants responded on a four-point Likert-type scale. The scores were then converted to a binary scale: "yes" (3 or 4 points) or "no" (1 or 2 points).

Smoking

We assessed this variable using the following "yes" or "no" question: "Do you smoke?"

Suicidal ideation

We assessed this variable using the following "yes" or "no" question: "Have you ever thought about committing suicide during the past 12 months?"

Counseling experience

We assessed this variable using the following "yes" or "no" question: "Have you ever received face-to-face, telephone, or online counseling for mental health concerns during the past 12 months?"

Perceived stress

We assessed this variable using the following question: "What is the level of stress you feel in your daily life?" Participants responded on a four-point Likert-type scale. The scores were then converted to a binary scale: "high" (3 or 4 points) or "low" (1 or 2 points), as proposed by Yong et al (9).

Current health status

We assessed participants' current health status by categorizing answers into one of three options: "good," "normal," and "poor."

Data analysis

To increase the accuracy of our estimation, and given that the samples of the Youth Panel Survey were extracted using a complex sample design, we performed a complex sample analysis reflecting the strata, clusters, and weights. We analyzed the data using SPSS, ver. 25.0 (IBM Corp., Armonk, NY, USA). Independent variables were negative life events, feelings of hopelessness, early-life adversity, alcohol consumption, smoking, counseling experience, perceived stress, and current health status. The dependent variable was suicidal ideation. We analyzed participants' general characteristics and major variables using descriptive statistics and a chi-square (χ^2) test, setting the significance level at 0.05. We tested the multicollinearity of the general characteristics and major variables. Additionally, to determine the effect of each variable on suicidal ideation, we used univariate multiple logistic regression analysis. The results of the regression analysis and significance of differences in the regression coefficients were analyzed using the Wald $\chi 2$ test.

Ethical considerations

Approval to conduct the Korean Youth Panel Survey 2008, 2018 was obtained from the Institutional Review Board (IRB) at Statistics Korea (No: 327005). The Korea Employment Information Service provides the raw data on their website, and we obtained permission to download and use the data on Jan 14, 2021. Additionally, we obtained an exemption for review of this study from the IRB of Semyung University (No: SMU-EX-2021-01-002).

Data sample size

As the G*Power program does not provide the required number of subjects for multiple logistic regression analysis, we calculated the number required for our sample by another method. When the probability of occurrence of eight predictors and the dependent variable (suicide attempt) is 0.02 (136 people/6,568 in this study), the number of the required sample is 4,000 (10). Accordingly, 6,568 people were included in this study; hence, the sample may be considered to have a sufficient effect size.

Results

Effect of each variable on suicidal ideation

Of the 6,568 participants, 3,084 (47.0%) were men and 3,484 (53.0%) were women. Participants' mean age was 30.14 ± 4.53 yr; further, 15 (0.2%) had no secondary education, 1,304 (19.9%) had

graduated from high school, 1,627 (24.8%) from junior college, 3,306 (50.3%) from college, and 316 (4.8%) from graduate school or higher. Table 1 shows the effects of the differences in suicidal ideation according to participants' sociodemographic characteristics and the variables of interest.

Sex had a significant effect on suicidal ideation; women showed a stronger tendency toward suicidal ideation than men. Moreover, a significantly higher risk of suicidal ideation was associated with a higher negative life events score (P<.001) and feelings of hopelessness (P< .001); the following were the early-life adversity experiences: rejection by peers (P=.049), death of a sibling (P=.021), parental unemployment (including bankruptcy; P= .043), and parental death (P=.044), with alcohol consumption (P=.030); counseling experience (P< .001); and perceived stress (P< .001).

Table 1: Differences in suicidal ideation according to participants' sociodemographic characteristics and the major variables of interest

Variables	***Total sample***		***Suicidal ideation***				***P-value***
			Yes		No		
	N	%	N	%	N	%	
Sex							
Male	3,084	47.0	42	1.4	3,042	98.6	.000
Female	3,484	53.0	94	2.7	3,390	97.3	
Education level							
Middle school or lower	15	0.2	1	6.7	14	93.3	.476
High school	1,304	19.9	23	1.8	1,281	98.2	
Junior college	1,627	24.8	40	2.5	1,587	97.5	
College	3,306	50.3	66	2.0	3,240	98.0	
Graduate school or higher	315	4.8	6	1.9	310	98.1	
Negative life events	6,568	100.0	1.51+0.54		2.70+1.00		.000
Hopelessness							
Yes	194	3.0	80	41.2	114	58.8	.000
No	6,374	97.0	56	0.9	6,318	99.1	
Early-life adversity							
Breakup with boy/girlfriend							
Yes	2,616	39.8	59	2.3	2,557	97.7	.221
No	3,952	60.2	77	1.9	3,875	98.1	
Rejection by peers							
Yes	128	1.9	6	4.7	122	95.3	0.49
No	6,440	98.1	130	2.0	6,310	98.0	
Failure in the college entrance exam							
Yes	371	5.6	11	3.0	360	97.0	.145
No	6,197	94.4	125	2.0	6,072	98.0	
Death of a friend							

Yes	362	5.5	5	1.4	357	98.6	.231
No	6,206	94.5	131	2.1	6,075	97.9	
Death of a sibling							
Yes	836	12.7	26	3.1	810	96.9	.021
No	5,732	87.3	110	1.9	5,622	98.1	
Parental unemployment (incl. bankruptcy)	297	4.5	11	3.7	286	96.3	.043
Yes	6,080	92.6	125	2.0	6,146	98.0	
No							
Parental divorce	203	3.1	5	2.5	198	97.5	.412
Yes	6,365	96.9	131	2.1	6,234	97.9	
No							
Parental death	410	6.2	14	3.4	396	96.6	.044
Yes	6,158	93.8	122	2.0	6,036	98.0	
No							
Alcohol consumption							
Yes	3,363	51.2	81	2.4	3,282	97.6	.030
No	3,205	48.8	55	1.7	3,150	98.3	
Smoking							
Yes	857	13.0	23	2.7	834	97.3	.113
No	5,711	87.0	113	2.0	5,598	98.0	
Counseling experience							
Yes	21	0.3	11	52.4	10	47.6	.000
No	6,547	99.7	125	1.9	6,422	98.1	
Stress							
Yes	1,404	21.4	104	7.4	1,300	92.6	.000
No	5,164	78.6	32	0.6	5,132	99.4	
Current health status							
Good	5,167	78.7	33	0.6	5,134	99.4	.000
Normal	1,207	18.4	63	5.2	1,144	94.8	
Poor	194	3.0	40	20.6	154	79.4	

Variables associated with suicidal ideation

We performed a logistic regression analysis for each variable to determine the odds ratio (OR) for suicidal ideation. Table 2 shows the summary of the results. The OR of suicidal ideation had a significant effect on sex, negative life events, feelings of hopelessness, early-life adversity, alcohol consumption, counseling experience, stress, and current health status.

Table 2: Results for the analysis of factors associated with suicidal ideation in Korean youth

Variables		***Suicidal ideation***		
		Adj. OR	95% CI	*P*-value
Sex	Female (ref. Male)	2.008	1.391–2.899	.000
Negative life events		6.483	5.228–8.039	.000
Hopelessness	Yes (ref. no)	79.173	53.686–116.760	.000
Early-life adversity				
Rejection by peers	Yes (ref. no)	2.387	1.033–5.517	.042
Death of a sibling	Yes (ref. no)	1.641	1.063–2.531	.025
Parental unemployment (including bankruptcy)	Yes (ref. no)	1.891	1.009–3.543	.047
Parental death	Yes (ref. no)	1.749	.997–3.069	.050
Alcohol consumption	Yes (ref. no)	1.413	1.000–1.998	.050
Counseling experience	Yes (ref. no)	56.514	23.571–136.497	.000
Stress	Yes (ref. no)	12.830	8.593–19.157	.000
Current health status	Normal (ref. good)	8.568	5.596–13.118	.000
	Poor	40.409	24.806–65.828	

Note. Adj. OR = Adjusted Odds Ratio; CI = Confidence Interval

Influence of different variables associated with suicidal ideation

We calculated explanatory powers of the models related to suicidal ideation, presented in Table 3, using Cox & Snell R^2=.087 and Nagelkerke R^2=.477 (-2 log likelihood ratio χ^2 = 725.154, *P*<.001), and demonstrated the model fit at the significance level of .05.

The parameter estimates, which represent the regression coefficients of the variables affecting suicidal ideation, yielded the following results. Among the sociodemographic characteristics, sex had a significant effect on suicidal ideation, whereby the OR (=Exp (B); the exponentiation of the B coefficient) of suicidal ideation was 2.099 times greater in women than in men. The OR of suicidal ideation increased 2.258 times with a one-point increase in the negative life events score, and 13.310 when participants reported having felt hopelessness. Among the early-life adversity variables, the OR of suicidal ideation increased by factors of 1.024, 1.334, and 1.441 when participants reported having experienced rejection by peers, death of a sibling, and parental death early in life, respectively. Among the health-related variables, the OR of suicidal ideation increased by factors of 1.775, 7.764, and 2.787 with alcohol consumption, counseling experience, and perceived stress, respectively. Furthermore, the OR of suicide ideation increased by factors of 3.235 and 5.294 as the perceived health status worsened from good to normal and from normal to poor, respectively (*P*<.05).

Table 3: Analysis of the risk factors of suicidal ideation in Korean youth

Variables		***Suicidal ideation***					
		B	S.E.	Wald	Exp (B)	95% CI	*P*-value
Sex	F (ref. M)	.741	.240	9.562	2.099	1.312–3.357	.002
Negative life events		.814	.139	34.322	2.258	1.719–2.965	.000
Hopelessness	Yes (ref. no)	2.589	.249	108.081	13.310	8.170–21.683	.000
Early-life adversity							
Rejection by peers	Yes (ref. no)	.024	.570	.002	1.024	0.335–3.131	.967
Death of a sibling	Yes (ref. no)	.288	.298	.935	1.334	0.744–2.391	.334
Parental unemployment (including bankruptcy)	Yes (ref. no)	-.617	.488	1.602	.539	0.207–1.403	.206
Parental death	Yes (ref. no)	.365	.374	.954	1.441	0.692–3.001	.329
Alcohol consumption	Yes (ref. no)	.574	.229	6.292	1.775	0.692–3.001	.012
Counseling experience	Yes (ref. no)	2.050	.617	11.043	7.764	2.318–26.006	.001
Stress	Yes (ref. no)	1.025	.255	16.110	2.787	1.689–4.596	.000
Current health status				30.797			.000
(ref. good)	Normal	1.174	.253	21.469	3.235	1.969–5.315	.000
	Poor	1.667	.253	24.213	5.294	2.726–10.282	.000
Cox & Snell R^2=.087, Nagelkerke R^2 =.477, -2 Log Likelihood Ratio χ^2 =725.154, p<.001							

Note. F = Female; M = Male; CI = Confidence Interval; S.E.= Standard Error

Discussion

We conducted this study to provide basic data for the development of efficient strategies to address the problem of suicide in Korean youth; by utilizing our data to accurately identify the risk factors of suicidal ideation, we can operationalize the strategies. In our study, we identified recent negative life events, feelings of hopelessness, and perceived stress as proximal risk factors of suicidal ideation in Korean youth. Regarding hopelessness, a meta-analysis of longitudinal studies (published between 1971 and 2014) was performed and confirmed hopelessness as a risk factor for suicidal ideation and attempts (11). Further, Qiu et al (12) conducted a 10-year longitudinal study to assess the effect of hopelessness on suicide and found that hopelessness does not predict suicide attempts, but leads to suicidal ideation, thus verifying the effect of hopelessness on the latter.

Moreover, the association between 5-HTR2A demonstrated, a gene known to be associated with suicide, with a stressful life and events of loss (13). The characteristics of impulsive suicide attempters investigated and found that stress-inducing events and feelings of hopelessness in the 12 months leading up to the suicide attempt are related to impulsive suicide attempts (14). Thus, our results are in consonance with the literature, which generally identified stress and hopelessness as risk factors for suicidal ideation.

In this study, negative counseling experiences, frequent drinking, and current health status were all risk factors for suicidal ideation; these results are aligned with the evidence from numerous

studies on the effects of mental health issues, history of mental illness, and alcohol consumption on suicidal ideation (15-17). Our results also corroborate those which showed that poor physical health is associated with poor mental health, and that people with a poor self-rated health status are more prone to suicidal ideation than those with a good self-rated health status (7).

Early-life adversity increases the risk of suicide in adulthood (18,19). Likewise, negative affectivity to events caused by early-life adversity amplifies depression, suicidal ideation, and attempts; our results corroborate this research as well (20).

The national action plan of the Korean government for suicide prevention does not separately define or emphasize high-risk groups for suicide. However, the action plan lists target population groups, which include older adults, people in economic crisis, chronically ill patients, patients using primary healthcare providers, suicide attempters, suicide survivors, and low-income occupational groups (21). However, people with a history of child abuse and other early-life adversities are not listed in the target population groups. Moreover, the government considered only proximal and health-related risk factors, not distal factors, of suicide when devising the list of high-risk groups.

In contrast, in the United States, distal risk factors for suicide are also considered when defining high-risk groups: the National Institute of Mental Health (22) includes domestic violence, comprising both physical and sexual abuse; the Center for Disease Control and Prevention (23) includes a family history of child abuse; and the Substance Abuse and Mental Health Services Administration (24) includes exposure to child abuse and complicated family history (e.g., divorce or separation, change of guardian, and change of residence) as factors that characterize high-risk groups for suicide. This allows for the strategic management of distal factors related to suicide. Taking into consideration the trends in the assessment of suicide by these highly regarded institutes, the Korean government should expand the scope of high-risk groups that the national action plan for suicide prevention is currently targeting; by considering both proximal and distal factors in this regard, the national plan may gain efficacy and sustainability. Meanwhile, it is also necessary to secure sufficient infrastructure for this modification, as the expansion of the scope of high-risk groups denotes that the number of management targets in the national action plan may increase.

Regarding distal risk factors, despite having a significant effect on suicidal ideation as individual variables, they did not have a statistically significant effect on suicide when the effects of all variables on suicidal ideation were determined. Thus, although not confirmed in this study, distal factors are likely to have played important roles as specific mediator or moderator variables in the effect on suicidal ideation. Therefore, we plan to conduct follow-up studies, to comprehensively investigate the pathways for distal factors affecting suicidal ideation. Once we define these pathways, we will have a more holistic view of the role of these distal factors; this may contribute to developing evidence-based interventions that may help prevent these factors from provoking suicidal ideation.

As this study used and analyzed data from the Korean Youth Panel Survey, it has limited generalizability. Moreover, because this study analyzed secondary data from the past 4 years and used limited variables, we cannot compare its findings with those of previous studies that used verified tools to test the variables.

However, the significance of this study lies in the fact that it identifies the variables affecting suicidal ideation in greater detail, using a wide range of longitudinal data pertaining to Korea's current situation, where the definition of high-risk groups for suicide has yet to encompass factors other than proximal and health-related variables.

Conclusion

This study identified recent negative life events, feelings of hopelessness, alcohol consumption, perceived stress, counseling experience, current health status, and early-life adversity experienced

in childhood as risk factors for suicidal ideation among Korean youth. Findings associated with distal risk factors, such as early-life adversity, suggest that the suicide problem among Korean youth cannot be improved by merely solving the current difficulties faced by young people. For effective and sustainable suicide prevention and intervention programs for high-risk groups, the Korean government and all other stakeholder institutions may need to shift their perspective regarding what defines a high-risk group for suicide; instead of focusing simply on current problems, these groups should be identified by an additional analysis of early-life adversities that were experienced by people in their childhood; thereafter, the problems related to these past adversities as risk factors for suicidal ideation should be treated.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interests.

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