

Conversations about cigarette health warning labels and smoking cessation attempts in Mexico

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Arillo-Santillán EJ, Rodríguez-Bolaños R, Gallegos-Carrillo K, Monterrubio-Flores E, Vidaña-Pérez D, Thrasher JF.

Conversations about cigarette health warning labels and smoking cessation attempts in Mexico. *Salud Publica Mex.* 2025;67:74-82.

<https://doi.org/10.21149/16044>

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Conversaciones sobre las advertencias sanitarias del tabaco e intentos de dejar de fumar en México. *Salud Publica Mex.* 2025;67:74-82.

<https://doi.org/10.21149/16044>

Abstract

Objective. Evaluate how conversations about health warning labels (HWLs) influence attempts to quit smoking (QAs) and sustained attempts to quit (SQAs) among in Mexican adult who smoke. **Materials and methods.** Data were analyzed from a cohort of 2 164 participants surveyed every four months between November 2018 and March 2021. Multinomial models regressed the frequency of talking about HWLs on sociodemographics and smoking-related variables. Generalized Estimating Equations assessed whether the effect of HWL talking frequency on QAs and, separately, SQAs at follow-up was mediated by the topic of conversation. **Results.** The majority reported having talked about HWLs (63.7%), regarding the harms of tobacco (73.3%), cessation benefits (58.5%), and lack of credibility/utility of HWLs (9.8%). At follow-up, 42.0% reported an QAs and 20.7% an SQAs. Conversations about HWLs were more frequent among younger participants, those with a university education, those who had recently attempted to quit smoking, and those intending to quit. Talking about HWLs was associated with a higher frequency of QAs and SQAs, mediated equally by discussions about cessation benefits and tobacco harms. **Conclusion.** Conversation topics around HWL are

Resumen

Objetivo. Evaluar cómo las conversaciones sobre las etiquetas de advertencias sanitarias (HWL) influyen en intentos para dejar de fumar (QAs) y en intentos sostenidos de dejar de fumar (SQAs) entre adultos que fuman. **Material y métodos.** Cohorte de mexicanos encuestados cada cuatro meses entre noviembre 2018 y marzo 2021. Muestra analítica de 2 164 participantes. Modelos multinomiales de la frecuencia de hablar sobre HWL y variables sociodemográficas y de tabaquismo. Los modelos multinomiales regresaron la frecuencia de hablar sobre las HWL en variables sociodemográficas y relacionadas con el tabaquismo. Las ecuaciones de estimación generalizadas evaluaron si el efecto de la frecuencia de hablar sobre las HWL en QAs y, por separado, en SQAs en el seguimiento estaba mediado por el tema de conversación. **Resultados.** La mayoría reportó haber hablado sobre HWL (63.7%), sobre daños (73.3%), beneficios (58.5%) y falta de credibilidad/utilidad de HWL (9.8%). En el seguimiento, 42.0% informó QAs y 20.7% SQAs. Las conversaciones fueron más frecuentes entre participantes más jóvenes, con estudios universitarios, intentos recientes y con intención de dejar de fumar. Hablar sobre HWL se asoció con mayor frecuencia a QAs y SQAs, mediada por las

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Received on: May 31, 2024 • Accepted on: August 13, 2024 • Published online: November 27, 2024

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associated with more smoking cessation attempts. Mexican HWLs focus primarily on harms, more research is needed to evaluate the optimal mix of content.

Keyword: tobacco-derived products labeling; smoking cessation; tobacco; cohort studies

conversaciones sobre daños y beneficios de dejar de fumar. **Conclusión.** Los temas de conversación de HWL se asocian con más intentos de dejar de fumar. Las HWL mexicanas se centran en daños; es necesaria investigación para evaluar la combinación óptima de temas contenidos.

Palabras claves: etiquetado de productos derivados del tabaco; dejar de fumar; tabaco; estudios de cohortes

Health warning labels (HWLs) on cigarette packs are an effective public policy for tobacco control and prevention.^{1,2} This policy, recommended by the World Health Organization (WHO), has been adopted by 138 countries and protects 4.5 billion people worldwide.³ HWLs are effective and cost-effective in communicating the health risks caused by tobacco use.^{4,5} In addition, they are a powerful educational strategy in low- and middle-income countries where there are few educational campaigns.^{6,7}

Systematic reviews,⁸ meta-analyses⁵ and randomized clinical trials⁹ have found that compared with text-only HWLs on cigarette packs, HWLs with pictorial imagery lead to greater attention to HWLs, greater knowledge about health risks, stronger negative affective reactions (e.g., fear, disgust, worry),^{2,10} and more frequent thinking and concern about health risks of tobacco,^{9,11} which drive intentions¹² and attempts to quit smoking.^{4,5,10,13} Additionally, several studies have found that talking to others about HWLs is one of the mechanisms that promote smoking cessation attempts,^{6,10,14,15} although little is known about the conversation topics that best stimulate cessation.

Among adult who smoke, more frequent talking about HWLs has been found to be associated with quit attempts (Australia), higher risk perception (Mexico), high level of education and younger age.⁶ 76% of Mexican who smoke report talking about HWLs, compared to 42% in Australia and 36% in Canada, which have also implemented pictorial HWLs. Even in the United States,¹⁶ where HWLs are small and do not contain pictures, more Spanish-speaking Latinos report talking about HWLs (85%) than non-Latino whites (35%), which may be explained by cultural values, such as family support and greater socialization with family members, as well as social support.¹⁵

One theory-based mechanism that potentially explains how conversations influence quit attempts is that HWLs promote cognitive elaboration of HWL mes-

sage content.^{6,14,16} For example, the association between frequency of talking about HWLs and cessation attempts appears mediated by the frequency of thinking about smoking risks, which are often emphasized in HWL messages.¹⁷ Previous studies in this area, however, have not considered the topics of HWL conversations that smokers discuss,^{6,10,15} which could focus on smoking harms, cessation benefits, or even topics that could undermine HWL effects, such as their lack of credibility or uselessness. To our knowledge, no longitudinal study has assessed whether the specific HWL topics that individuals who smoke discuss explains how HWL conversations may influence cessation behaviors. Identifying which topics are most likely to promote smoking cessation behaviors may help identify effective content for HWLs as well as other communication interventions, such as mass media campaigns.

In 2010,¹⁸ Mexico implemented pictorial HWLs on cigarette packs that: occupy at least 30% of the front face, 100% of the back face, and 100% of one of the side faces; HWL messages rotate every 4-6 months and include a telephone number for cessation support.¹⁸ Mexico invariably follows international recommendations to use HWL imagery that graphically portrays the consequences of smoking,¹⁹ which aims to generate a negative emotional reaction and concern about smoking-related risks²⁰ (appendix on Mexican HWLs from 2018 to 2021).²¹ In 2023, the Global Adult Tobacco Survey²² found that 86.6% of Mexican adult who smoke noticed HWLs and, among this group, 34.6% thought about quitting smoking because of HWLs.

This study of a cohort of Mexican adults who smoke aimed to evaluate whether the frequency of talking about HWLs is associated with quit attempts and which demographic characteristics predict frequency of conversations. This study also aimed to identify which topics of conversation mediate any associations between frequency of talking about HWLs and quit attempts, both brief and sustained, over a four month period.

Materials and methods

An open cohort of Mexican adult who smoke was recruited from an online commercial research panel surveyed every four months across eight surveys, from November 2018 to March 2021. Recruitment included quotas for education (i.e., $n \geq 500$ with high school or lower educational attainment) and e-cigarette use in the prior month (i.e., $n \geq 500$). Survey questions were primarily from the International Tobacco Control (ITC) survey.²³ Participants provided consent before completing the survey. All study procedures were approved by the Institutional Review Board and Ethics Committee of the National Institute of Public Health of Mexico (CI 1572).

Measurement

Dependent variable: smoking cessation at time "t + 1"

At follow-up ("t + 1") participants were asked if they had quit smoking or not. Those who continued smoking were asked if they had made a quit attempt during the prior four months (i.e., the period between surveys) and, if so, they were queried about the longest time they had gone without smoking over that period. Similarly, those who indicated that they had quit were asked the length of their current quit attempt, as well as any quit attempts that had lasted longer over the prior four months.

Responses were used to classify participants as: a) no quit attempts "No QA"; b) brief quit attempt at follow-up <30 days of abstinence "QA"; and c) sustained quit attempt of ≥ 30 days of abstinence "SQA".²⁴ Following recommendations for cessation trials,²⁵ we used 30-day abstinence as the cut point for SQAs. The 30-day cut-off point measures whether a person has achieved mid-term abstinence, which indicates that the person has passed the most critical stage of abstinence and is on a path to recovery.²⁵ Most relapses in the quitting process occur in the first 30 days, so this period is a significant predictor of long-term success.²⁶

Independent variables at time "t"

Participants reported their frequency of talking about HWLs in the last month, with the original response categories recoded into: a) "not at all" or "don't know"; b) "once" or "sometimes" = sometimes; c) "frequent" and "very frequent" = frequent. Participants who reported talking about HWLs were asked the topics of conversations, with a list of six topics from which participants could select all that apply. For analysis purposes, topics were combined: a) "harms caused by smoking" and/or "harms of secondhand smoke"; b) "benefits of quit-

ting" and/or "need to quit smoking" = "benefits to quitting smoking"; and c) "lack of HWL credibility" and/or "lack of utility of HWLs".

Covariates

Smoking related variables at time "t"

All participants were asked how often they smoked cigarettes in the prior month, with responses classified into: a) non-daily smoker [reference]; b) daily smoker, ≤ 5 cigarettes per day (CPD); and c) daily smoker, > 5 CPD. Among daily smokers in Mexico, five CPD is the median.²⁷ Participants were also asked if they had attempted to quit smoking in the prior four months vs. not [reference], and if they intended to quit smoking (recoded to plans to quit in next six months vs. not [reference]).

Participants reported their age (i.e., 18-29 [reference], 30-39, 40-49, 50+ years old), sex (female [reference], male), and highest educational attainment (middle school or less [reference]; high school, technical studies or some college; university or more). In addition, monthly household income in Mexican pesos was categorized as follow: a) $\leq 8\,000$ MX [reference]; b) 8 001 to 15 000 MX; c) 15 001 to 20 000 MX; d) $> 20\,000$ MX. Those who reported they "don't know" ($n = 240$), were deleted from the analytic sample. The number of prior surveys participants had answered (i.e., "time in sample" range= 1-4) was also assessed.

Statistical analysis

The analytic sample comprised participants who were smokers at a wave 1 to 7 survey (time "t") and were followed up for at least one consecutive wave 2 to wave 8 survey (time "t + 1") (individuals $n = 2\,164$; observations $n = 4\,431$).

Crude and adjusted multinomial regression models (Relative Risk Ratios (RRR)) were estimated to assess associations between time t covariates and time t of frequency of talking about HWLs (not at all= reference; sometimes; and frequently).

Generalized Estimating Equation (GEE)²⁸ models were estimated analyzing data for each consecutive wave pair (i.e., time t predicting time t + 1) as a separate observation, while adjusting for the non-independence of multiple observations from individuals. Separate logistic GEE models were estimated for each of two QA outcomes at time t+1 (no QA= reference vs. any QA during past four months; no QA and QA lasting less than 30 days= reference vs. SQA for at least 30 days). A bootstrap procedure was used to assess whether

HWLs communication topics mediated effects of talking frequency at time “t” on the QA outcome at time “t + 1”, adjusting for covariates. For each outcome, models included all three topics as mediators at the same time (figure 1). Associations were considered statistically significant at a *p*-value <0.05, with a two-tailed 95% confidence interval (95%CI).

Results

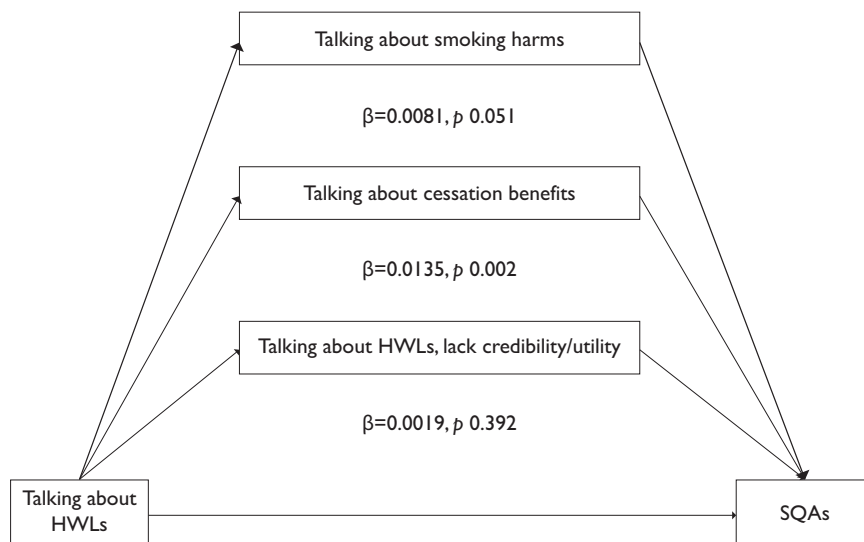
Most participants reported that they talked about HWLs either sometimes (47.9%) or frequently (15.8%) (table I). Of those who talked about HWLs, most reported talking about smoking harms/secondhand smoke (73.3%) or about cessation benefits/the need to quit smoking (58.5%), and 9.8% about how HWLs lack credibility/utility.

In adjusted multinomial models for frequency of talking about HWLs (table II), being older was inversely associated with talking both sometimes and frequently (e.g., $ARRR_{50+ \text{ vs. } 18-29 \text{ age}} = 0.49$, 95%CI: 0.38,0.65 and $ARRR_{50+ \text{ vs. } 18-29 \text{ age}} = 0.46$, 95%CI: 0.31,0.67, respectively), and more frequent smoking was inversely associated with talking sometimes ($ARRR_{\text{daily} \geq 5 \text{ CPD vs. nondaily}} = 0.72$, 95%CI: 0.58,0.89). Those with high education (vs. low), a recent quit attempt, and quit intentions were more likely to report talking sometimes ($ARRR$

$\geq \text{University vs.} \leq \text{High school} = 1.55$, 95%CI: 1.24,1.95; $ARRR_{\text{quit attempt vs. not}} = 1.57$, 95%CI: 1.32,1.87; $ARRR_{\text{quit intention vs. not}} = 1.31$, 95%CI: 1.10,1.57) and frequently ($ARRR_{\geq \text{University vs.} \leq \text{High school}} = 1.73$, 95%CI: 1.27,2.35; $ARRR_{\text{quit attempt vs. not}} = 2.59$, 95%CI: 2.04,3.30; $ARRR_{\text{quit intention vs. not}} = 2.04$, 95%CI: 1.60,2.59).

The time “t + 1” incidence of any QAs during past four months was 42.0% and of SQAs >30 days was 20.7%. In the mediation model for QAs (table III), the total effect of talking frequency on QAs was statistically significant ($\beta = 0.082$, SE= 0.025, *p* <0.001), as were the indirect effects of talking frequency on QAs via talking about harms ($\beta = 0.012$, SE= 0.004, *p* = 0.007) and via talking about cessation benefits ($\beta = 0.014$, SE= 0.004, *p* <0.001). However, the indirect effect of talking frequency via talking about HWLs as not credible/useful was not significant ($\beta = -0.001$, SE= 0.002, *p* = 0.454).

In the mediation model for SQAs (table IV), the total indirect effects via mediators were statistically significant ($\beta = 0.024$, SE= 0.007, *p* <0.001), with talking about harms being a marginally significant positive mediator ($\beta = 0.008$, SE= 0.004, *p* = 0.051) and talking about cessation benefits was a statistically significant positive mediator ($\beta = 0.014$, SE= 0.004, *p* = 0.002). The indirect effect of talking frequency on SQAs via talking about HWLs as not credible was not statistically significant ($\beta = 0.002$, SE= 0.002, *p* = 0.392).



HWLs: health warning labels
 SQAs: sustained quit attempts

FIGURE 1. TALKING ABOUT TOPICS OF HWLs AS MEDIATORS OF THE ASSOCIATION BETWEEN TALKING ABOUT HWLs AND SQAs, AMONG MEXICAN WHO SMOKE. MEXICO, 2018-2021

Table 1
CHARACTERISTICS OF THE STUDY POPULATION
ACCORDING TO TALKING FREQUENCY ABOUT HWLS
AMONG MEXICAN WHO SMOKE.
MEXICO, 2018-2021

Variable	Population who was asked if had talked about HWLS (n= 4 431)	
	n	%
Age group		
18-29	995	22.5
30-39	1 345	30.4
40-49	1 002	22.6
50 +	1 089	24.6
Sex		
Female	2 093	47.2
Male	2 338	52.8
Educational attainment		
High school and less	1 510	34.1
Technical/some college	1 243	28.1
University and more	1 678	37.9
Household income at monthly (MX)		
Less than 8 000	884	20.0
8 001 to 15 000	1 408	31.8
15 001 to 20 000	850	19.2
>20 000	1 289	29.1
Smoking frequency		
Non-daily	2 144	48.4
Daily ≤ 5 cigs	1 085	24.5
Daily >5 cigs	1 202	27.1
Quit attempt (last four months)		
No	2 677	60.4
Yes	1 754	38.6
Intentions to quit in the next six months		
No	2 820	63.6
Yes	1 611	36.4
Talk about HWLS*		
Never, don't know	1 610	36.3
Once/sometimes a	2 122	47.9
Frequently/Very frequently	699	15.8
Survey wave		
1	435	9.8
2	645	14.6
3	526	11.9
4	763	17.2
5	733	16.5
6	718	16.2
7	611	13.8

* Talking about topics: a) Smoking harms/secondhand smoke n= 2 278 (73.3%); b) Cessation benefits/need to quit smoking n= 1 1665 (58.5%); c) Lack of message credibility/utility n= 278 (9.8%); HWLS: health warning labels

Discussion

This study found that Mexican smokers who talked with others about HWLS most discussed the harms of smoking and the benefits and necessity of quitting. Talking about HWLS was positively associated with greater quit attempts, both brief and sustained, at follow-up. The positive associations between the frequency of talking about HWLS and subsequent cessation behaviors were partially mediated by these two topics of conversation. These results provide further nuance to prior research suggesting that talking about HWLS may keep memories and evaluative associations stemming from HWL message exposure vivid through the elaborated thinking that accompanies conversation.⁶ While HWL messages focus on smoking-related harms, we find that conversations often go beyond that topic to include cessation benefits and needs, perhaps catalyzing social support for cessation attempts.

Smokers who talked more frequently about HWLS reported recent quit attempts and intentions to quit smoking, consistent with previous findings in longitudinal studies with Australian, Canadian and Mexican populations.⁶ This association is not surprising given that HWLS appear to resonate with smokers who are more actively engaged in or thinking about quitting, as found for other key pathways of HWL effects on cessation, such as thinking about risks or quitting.²⁹ As in prior research,⁶ we also found that more individuals with high levels of addiction and those with lower educational attainment and older age reported talking less often about HWLS than their counterparts.

Despite the frequent rotation of HWLS in Mexico, decision makers have tended to “recycle” messages from prior years, potentially reducing their effectiveness through habituation, particularly for these groups.³⁰⁻³² Decision makers should consider developing new HWL messages that better resonate with them to avoid contributing to health disparities.

Our results found that talking to others about the benefits of quitting smoking mediated the effects of the frequency of talking about HWLS on both QAs and SQAs. Talking about the harms of smoking had a comparable mediating effect on QAs, although mediation was weaker and only marginally significant for SQAs. This pattern of results suggests while both types of conversations stimulate cessation attempts, conversations about HWLS may have a greater impact on actual smoking cessation if they generate positive thoughts of quitting smoking, similar to some research on the effects of positive as opposed to fear arousing messages.³³ Since 2010, Mexico's HWLS have focused primarily on the negative consequences of smoking, and we found that

Table II
CHARACTERISTICS OF THE STUDY POPULATION ACCORDING TO TALKING FREQUENCY ABOUT HWLS AMONG MEXICAN WHO SMOKE. MEXICO, 2018-2021

Talking frequencies about HWLS (observations n= 4 431, individuals n= 2 164)

Variables	No report of talking/don't know (n= 1 610)		Sometimes (once/occasionally) (n= 2 122)		Frequently (often/very often) (n= 699)		
	%		RRR (95%CI)	ARRR (95%CI)*	%	RRR (95%CI)	ARRR (95%CI)*
Age group							
18-29	27.2	54.3	Reference	Reference	18.5	Reference	Reference
30-39	30.0	52.3	0.86 (0.69,1.09)	0.86 (0.68,1.10)	17.7	0.87 (0.63,1.19)	0.86 (0.62,1.19)
40-49	41.3	44.4	0.54 (0.42,0.70) [‡]	0.58 (0.44,0.75) [‡]	14.3	0.49 (0.35,0.70) [‡]	0.57 (0.39,0.82) [§]
50 +	47.8	39.9	0.41 (0.32,0.52) [‡]	0.49 (0.38,0.65) [‡]	12.3	0.35 (0.25,0.51) [‡]	0.46 (0.31,0.67) [‡]
Sex							
Female	36.5	46.7	Reference	Reference	16.8	Reference	Reference
Male	36.2	48.9	1.07 (0.90,1.27)	1.08 (0.90,1.30)	14.9	0.94 (0.73,1.20)	0.96 (0.75,1.23)
Educational attainment							
High school and less	38.8	47.0	Reference	Reference	14.2	Reference	Reference
Technical/some college	44.0	42.4	0.77 (0.63,0.95) [§]	0.84 (0.67,1.05)	13.6	0.82 (0.61,1.10)	0.88 (0.65,1.19)
University and more	28.4	52.8	1.57 (1.28,1.92) [‡]	1.55 (1.24,1.95) [‡]	18.8	1.90 (1.43,2.51) [§]	1.73 (1.27,2.35) [‡]
Household income at monthly (MX)							
Less than 8 000	38.0	48.9	Reference	Reference	13.1	Reference	Reference
8 001 to 15 000	36.0	47.7	1.02 (0.82,1.29)	0.98 (0.77,1.23)	16.3	1.31 (0.95,1.80)	1.24 (0.89,1.73)
15 001 to 20 000	37.3	46.5	0.96 (0.74,1.25)	0.96 (0.73,1.26)	16.2	1.26 (0.88,1.78)	1.29 (0.88,1.88)
>20 000	34.9	48.4	1.07 (0.84,1.38)	0.98 (0.75,1.29)	16.7	1.38 (0.97,1.95)	1.29 (0.88,1.89)
Smoking frequency							
Non-daily	31.5	51.3	Reference	Reference	17.2	Reference	Reference
Daily ≤ 5 cigs	38.8	46.8	0.73 (0.60,0.89) [§]	0.84 (0.68,1.04)	14.4	0.68 (0.52,0.90) [§]	0.86 (0.64,1.15)
Daily > 5 cigs	42.7	42.8	0.62 (0.50,0.76) [‡]	0.72 (0.58,0.89) [§]	14.6	0.62 (0.47,0.83) [§]	0.79 (0.58,1.07)
Quit attempt (last four months)							
No	43.5	45.8	Reference	Reference	10.7	Reference	Reference
Yes	25.4	51.1	1.90 (1.63,2.25) [‡]	1.57 (1.32,1.87) [‡]	23.6	3.82 (3.07,4.75) [‡]	2.59 (2.04,3.30) [‡]
Intentions to quit in the next six months							
No	41.6	46.9	Reference	Reference	11.5	Reference	Reference
Yes	27.1	49.7	1.68 (1.43,1.98) [‡]	1.31 (1.10,1.57) [§]	23.2	3.17 (2.54,3.96) [‡]	2.04 (1.60,2.59) [‡]

RRR: relative risk ratios

ARRR: adjusted relative risk ratios

*ARRR models adjusted for all variables in the column, as well as "time in sample" (i.e., the number of prior surveys to which a participant responded).

‡ p-value < 0.001; § p-value < 0.05; HWLS: health warning labels

most conversations about HWLS are about this topic. As more smokers and potential smokers have become aware of the variety of smoking-related harms –a fundamental purposes of HWLS³⁴ –consideration of other types of HWL messages may be merited.

Our results regarding the potential importance of conversations about the benefits of cessation suggest

that such messages could be considered for Mexico's HWL messages. Canada, for example, complements its fear arousing HWLS with inserts (small leaflets inside the packs) with messages about the benefits of quitting smoking and tips for quitting. Observational research in Canada and clinical trials in the US^{33,35-37} suggest that this messaging strategy may promote smoking cessa-

Table III
DIRECT AND INDIRECT EFFECTS OF TALKING TOPICS ABOUT HWLS ON ANY QUIT ATTEMPTS, AMONG MEXICAN WHO SMOKE. MEXICO, 2018-2021

Results of the mediation analysis

Effect	Path	β	SE	95%CI		p
				Lower	Upper	
Total	TF → QAs	0.0825	0.025	0.040	0.125	0.000
Total indirect		0.0247	0.007	0.012	0.037	0.000
Indirect 1	TF → HARMS → QAs	0.0119	0.004	0.003	0.021	0.007
Indirect 2	TF → BENEFITS → QAs	0.0142	0.004	0.007	0.022	0.000
Indirect 3	TF → HWLs Not credible → QAs	-0.0014	0.002	-0.005	0.002	0.454
Direct	TF → QAs	0.0577	0.024	0.015	0.101	0.008

TF: talking frequency; HWLs: health warning labels; QAs: quit attempts; SE: standard error

Table IV
DIRECT AND INDIRECT EFFECTS OF TALKING TOPICS ABOUT HWLS ON SQAs vs. NO QAs OR QAs, AMONG MEXICAN WHO SMOKE. MEXICO, 2018-2021

Results of the mediation analysis

Effect	Path	b	SE	95%CI		p
				Lower	Upper	
Total	TF → SQAs	0.0312	0.025	-0.018	0.080	0.214
Total indirect		0.0235	0.007	0.010	0.037	0.000
Indirect 1	TF → HARMS → SQAs	0.0081	0.004	0.000	0.016	0.051
Indirect 2	TF → BENEFITS → SQAs	0.0135	0.004	0.005	0.022	0.002
Indirect 3	TF → HWLs Not credible → SQAs	0.0019	0.002	-0.002	0.006	0.392
Direct	TF → SQAs	0.0076	0.025	-0.042	0.057	0.762

TF: Talking frequency; HWLs: Health Warning Labels; QAs: Quit attempts; SQAs: Sustained smoking quit attempts; SE: standard error

tion, above and beyond fear-arousing HWLs. Evaluating this strategy for Mexico is consistent with a movement in communication theory and public health campaigns toward focusing on the role of positive emotions in promoting healthy behaviors. For example, there is evidence that experimental induction of gratitude - a value that tends to recognize and acknowledge feelings of solidarity with others - directly increases smoking cessation behavior.³⁸ The effect of positive emotional responses to HWLs, such as optimistic expectations and gratitude, should be explored in the Mexican population, as optimistic people take positive preventive measures and strive to minimize health risks.

This study has some limitations. The study sample was recruited from an online panel for market research in Mexico and is not representative of the general populations. In particular, the sample over-represented

people from higher socioeconomic status groups. As we found that persons who smoke with higher education were more likely to report talking about HWLs, our results may overestimate the strength of associations we found. While self-reported responses to HWLs may have been biased, the influence of these biases on the associations we evaluated is unclear. Due to the online nature of our sample, biochemical validation of smoking cessation was not feasible, but socially desirable responding³⁹ seems unlikely given the anonymous nature of the survey. In Mexico, the development of cardiovascular diseases,⁴⁰ associated with hypertension,⁴¹ hypercholesterolemia and diabetes⁴² has increased as the leading cause of death. Exposure to smoking is the main cause that can be prevented through public policies with social equity,⁴³ and strategies such as the labeling of tobacco products.

Conclusion

Conversation topics about HWLs appear to matter in promoting smoking cessation attempts. As Mexican HWLs primarily focus on smoking harms, more research is needed to assess the optimal mix of HWLs message content, including messages that best prompt discussions and messages that address cessation benefits and gratitude. Future research should address whether who smokers talk to matters for cessation behavior, as well as explore whether these conversations lead to effective social support for cessation.

Declaration of conflict of interests. The authors declare that they have no conflict of interests.

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