



UNIVERSITAT DE
BARCELONA

**Transiciones en el consumo de tabaco, actitudes
y formación en tabaquismo en una cohorte
de estudiantes de Enfermería en Cataluña:
Estudio ECTEC-S**

Kenza Laroussy El Tayea



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TESIS DOCTORAL

Transiciones en el consumo de tabaco, actitudes y
formación en tabaquismo en una cohorte de estudiantes
de Enfermería en Cataluña: Estudio ECTEC-S

Directores:

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Enfermería en Cataluña: Estudio ECTEC-S

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El Prof. **Esteve Fernández Muñoz** i la Dra. **Cristina Martínez Martínez**, com a directors de doctorat de la Sra. **Kenza Laroussy** certifiquen que la Sra. Laroussy ha desenvolupat, fets els estudis corresponents i escrit la seva tesi doctoral per compendi d'articles "Transiciones en el consumo de tabaco, actitudes y formación en tabaquismo en una cohorte de estudiantes de Enfermería en Cataluña: Estudio ECTEC-S" a l'Institut Català d'Oncologia/Institut d'Investigació Biomèdica de Bellvitge en el marc del Programa de Doctorat en Infermeria i Salut de la Facultat d'Infermeria de la Universitat de Barcelona; i que la memòria està llesta i donen el seu vist-i-plau per al dipòsit i defensa pública quan la Comissió de Doctorat ho autoritzi.

Per això signem la present, a L'Hospitalet de Llobregat, el sis de novembre de 2023.

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“العلم نور”

“El conocimiento es luz.”

Proverbio árabe.

AGRADECIMIENTOS

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PRESENTACIÓN DE LA TESIS

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Esta tesis doctoral abarca los resultados de un proyecto de investigación llevado a cabo en estudiantes de Enfermería en Cataluña. El objetivo principal del proyecto fue caracterizar y monitorear el consumo de tabaco, los conocimientos, las actitudes, la formación en tabaquismo y el cumplimiento de las políticas de control de tabaco en esta población. Este proyecto ha sido realizado por la Unidad de Control de Tabaco (UCT) del Instituto Catalán de Oncología (ICO), centro colaborador de la Organización Mundial de la Salud (OMS). La primera fase del proyecto, denominada ECTEC (Estudio del Consumo de Tabaco entre estudiantes del grado universitario de Enfermería en Cataluña), se llevó a cabo durante el curso académico 2015–2016, y la segunda, conocida como ECTEC-S (Estudio de Seguimiento del Consumo de Tabaco entre estudiantes del grado universitario de Enfermería en Cataluña), se realizó en el curso 2018–2019.

Esta tesis es una compilación de seis manuscritos, de los cuales cuatro han sido publicados en revistas internacionales de alto impacto. Estas publicaciones contienen los resultados obtenidos en el marco de los estudios ECTEC y ECTEC-S.

La tesis se ha redactado en castellano, aunque los artículos se han redactado y publicado en inglés, y se ha estructurado en los siguientes apartados: introducción, hipótesis, objetivos, métodos, resultados, discusión, conclusiones y referencias. En los anexos se incluyen los cuestionarios, la hoja informativa y el consentimiento informado del estudio basal (ECTEC) y del seguimiento (ECTEC-S), el material utilizado para la difusión y realización de la encuesta de seguimiento, la aprobación otorgada por el Comité de Ética de Investigación Clínica del Hospital Universitario de Bellvitge y de la Comisión de Bioética de la Universidad de Barcelona, las tablas suplementarias de los manuscritos, el *currículum vitae* de la candidata y las listas de las comunicaciones científicas derivadas de la tesis doctoral y premios.

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RESUMEN

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Introducción: El consumo de tabaco sigue siendo el problema de salud pública más importante, ya que representa la principal causa de morbilidad y mortalidad prevenible a nivel mundial. A pesar de conocerse las consecuencias del consumo de tabaco, éste sigue siendo muy prevalente en muchos países, entre los que España es un ejemplo notable.

Los/las profesionales de la salud, y en especial los/las enfermeros/as, desempeñan un rol fundamental en la prevención y control del tabaquismo. No obstante, es preocupante que muchos de estos/as profesionales presenten una alta prevalencia de consumo de tabaco, así como deficiencias en sus conocimientos, actitudes y formación relacionados con el tabaquismo. Estas limitaciones interfieren de manera negativa en su capacidad para implementar intervenciones efectivas para la cesación tabáquica. La elevada prevalencia de consumo de tabaco y la falta de conocimientos, actitudes y formación en tabaquismo también se observan entre los/las estudiantes de Enfermería. Sin embargo, si bien estos factores influirán en su futura práctica profesional como enfermeros/as, en la actualidad, no se dispone de un conocimiento detallado sobre la evolución individual que experimentan los/las estudiantes de Enfermería a lo largo de su formación universitaria en relación con estas variables, ni se conocen los factores que influyen en estos cambios.

Objetivo: Examinar los cambios en el consumo de productos de tabaco, la formación y las actitudes relacionadas con el tabaquismo en una cohorte de estudiantes de Enfermería, comparando los datos obtenidos en el estudio basal (2015–2016) con los del seguimiento (2018–2019).

Metodología: Estudio prospectivo de una cohorte de estudiantes de Enfermería de Cataluña (España) realizado entre los años académicos 2015-2016 y 2018-2019. En el estudio basal se utilizó un cuestionario en papel autoadministrado y, en el seguimiento, se empleó un cuestionario similar administrado en línea. Las principales variables dependientes se definieron de la siguiente manera: (i) participación en el seguimiento (sí o no); (ii) transiciones en el estado y patrón de consumo de productos de tabaco (iniciar el consumo de tabaco, recaer, dejar de fumar, pasar de fumador/a diario/a a ocasional y viceversa, pasar de consumo de solo cigarrillos a consumo combinado y viceversa, cambiar de un producto

a otro y reducir el consumo de cigarrillos ≥ 5 cigarrillos por día (CPD) vs. continuar con el mismo estado o patrón de consumo de tabaco que en la fase basal); (iii) transiciones en las actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo (pasar de estar en desacuerdo en el estudio basal a estar en acuerdo en el seguimiento vs. continuar en desacuerdo); y (iv) transiciones en la formación recibida durante el grado de Enfermería sobre tabaquismo (pasar de no haber recibido la formación en el estudio basal a haberla recibido en el seguimiento vs. seguir sin haberla recibido). Como variables independientes se incluyeron las variables sociodemográficas y las características de consumo de tabaco en el estudio basal y en el seguimiento de los/las participantes. En el análisis descriptivo se calcularon las prevalencias (%) y sus correspondientes intervalos de confianza (IC) del 95%. En el análisis bivariado, se utilizó la prueba Chi-cuadrado y el test exacto de Fisher para las variables cualitativas y en el análisis multivariado se utilizaron modelos de regresión logística para calcular las odds ratios ajustadas (ORa) y sus correspondientes IC95%.

Resultados: De los/las 4.381 estudiantes de Enfermería del estudio basal, un total de 1.252 (25%) participaron en el seguimiento. La probabilidad de participar en el seguimiento fue mayor en las personas con las características siguientes: ser mujer (ORa = 1,76; IC95%: 1,40–2,15), tener ≤ 19 años (ORa = 1,43; IC95%: 1,10–1,86) y nunca haber fumado (ORa = 1,44; IC95%: 1,21–1,75), en comparación con los hombres, personas de ≥ 25 años y los/las fumadores/as.

Durante el período de seguimiento, los/las estudiantes de Enfermería experimentaron diversas transiciones en su estado y patrón de consumo de tabaco. Entre los/las fumadores/as en el estudio basal (incluyendo tanto a los/las fumadores/as diarios/as y ocasionales), el 28,3% dejaron de fumar y el 60,8% redujeron su consumo de tabaco en al menos 5 CPD en el seguimiento. Los/las consumidores/as ocasionales presentaron una mayor probabilidad de dejar de fumar (ORa = 2,88, IC95% 1,49–5,58), pero, junto con los/las fumadores/as con baja dependencia ostentaron menor probabilidad de reducir el consumo, (ORa = 0,13, IC95% 0,06–0,30 and ORa = 0,38, IC95% 0,16–0,89, respectivamente), en comparación con los/las fumadores/as diarios/as y los/las que reportaron una media o alta dependencia en el estudio basal. Además, el 12,1% de los/las fumadores/as diarios/as cambiaron a un consumo ocasional, mientras que el 36,2% de los/las fumadores/as ocasionales pasaron a consumo diario. Entre aquellos/as que fumaban exclusivamente cigarrillos, el 14,2% empezaron a consumir productos combinados, mientras que el 48,4%

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de los/las que hacían de forma inicial un consumo combinado pasaron a solo cigarrillos. Por otra parte, de los/las nunca fumadores/as, el 4,6% iniciaron el consumo de tabaco en el seguimiento y el 23,2% de los/las exfumadores/as recayeron. A consecuencia de estas transiciones, la prevalencia global de fumadores/as disminuyó del 29,7% a 23,6% entre el estudio basal y el seguimiento. Sin embargo, las proporciones de fumadores/as diarios/as y ocasionales apenas variaron (62,0% y 38,0% en el basal y 63,6% y 36,4% en el seguimiento). La prevalencia de exfumadores/as aumentó de 13,1% a 19,4%, mientras que la prevalencia de nunca fumadores/as se mantuvo estable.

Por otro lado, más del 50% de los/las estudiantes de Enfermería adquirieron actitudes positivas hacia el rol de los/las profesionales y las organizaciones sanitarias en el control del tabaquismo entre el estudio basal y el seguimiento. Esto fue más probable entre los/las nunca fumadores/as y los/las exfumadores/as (todas las ORa > 2,00) que entre los/las fumadores/as, pero menos probable entre los/las participantes de los últimos cursos del Grado de Enfermería (3º y 4º) (ORa = 0,64, 0,42–0,96) que los/las de los primeros cursos (1º y 2º).

Finalmente, más del 60% de los/las participantes pasaron de no haber recibido formación sobre tabaquismo durante el grado de Enfermería a haberla recibido durante el seguimiento. Esto fue menos probable entre los/las estudiantes de los últimos cursos del Grado de Enfermería (3º y 4º) (todas las ORa < 0,50) y los/las nunca fumadores/as (todas las ORa < 0,70), en comparación con los/las participantes de los primeros cursos (1º y 2º) y los/las fumadores/as.

Conclusiones: Los/las estudiantes de Enfermería seguidos/as experimentaron diversos cambios en el estado y patrón de consumo de tabaco, actitudes y formación en tabaquismo entre el estudio basal y el seguimiento. En términos de participación, se observó que ser mujer, tener ≤ 19 años y nunca haber fumado fueron factores predictores de seguimiento, lo que sugiere la importancia de estas variables en la continuidad de la participación en estudios de esta naturaleza. Además, el consumo ocasional de tabaco y una baja dependencia a la nicotina emergieron como factores determinantes en las transiciones en su estado y patrón de consumo de tabaco. Sumado a ello, los resultados revelaron que los/las participantes que estaban en los últimos cursos académicos en el estudio basal tuvieron menor probabilidad de adquirir actitudes positivas y formación en el seguimiento. Por otro lado, ser exfumador/a y nunca haber fumado se asoció con la adquisición de

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actitudes positivas, aunque también estuvo relacionado con la falta de formación en tabaquismo durante el período de seguimiento.

En conjunto, estos hallazgos subrayan la urgente necesidad de implementar estrategias efectivas dirigidas a prevenir el consumo de tabaco, promocionar la cesación tabáquica, fortalecer la formación en tabaquismo y promover la visión de rol ejemplar entre los/las estudiantes de Enfermería. Estas acciones son fundamentales para abordar el problema persistente del tabaquismo y su impacto en la salud pública, especialmente en los/las futuros/as profesionales de la salud.

RESUM

Introducció: El consum de tabac continua sent el problema de salut pública més important, ja que representa la principal causa de morbiditat i mortalitat prevenible al món. Tot i conèixer-se les conseqüències del consum de tabac, aquest continua sent molt prevalent a molts països, entre els quals Espanya és un exemple notable.

Els/les professionals de la salut, i especialment els/les infermers/es, exerceixen un rol fonamental en la prevenció i control del tabaquisme. Tot i això, és preocupant que molts/es d'aquests/es professionals presentin una alta prevalença de consum de tabac, així com deficiències en els seus coneixements, actituds i formació relacionats amb el tabaquisme. Aquestes limitacions interfereixen de manera negativa en la seva capacitat per implementar intervencions efectives per a la cessació tabàquica. La elevada prevalença de consum de tabac i la manca de coneixements, actituds i formació en tabaquisme també s'observen entre els/les estudiants d'Infermeria. No obstant, si bé aquests factors influiran en la seva futura pràctica professional com a infermers/es, en l'actualitat, no es disposa d'un coneixement detallat sobre l'evolució individual que experimenten els/les estudiants d'Infermeria al llarg de la seva formació universitària en relació amb aquestes variables, ni es coneixen els factors que influeixen en aquests canvis.

Objectiu: Examinar els canvis en el consum de productes de tabac, la formació i les actituds relacionades amb el tabaquisme en una cohort d'estudiants d'Infermeria, comparant les dades obtingudes a l'estudi basal (2015–2016) amb les del seguiment (2018–2019).

Metodologia: Estudi prospectiu d'una cohort d'estudiants d'Infermeria de Catalunya (Espanya) realitzat entre els anys acadèmics 2015–2016 i 2018–2019. A l'estudi basal es va utilitzar un qüestionari en paper autoadministrat i, en el seguiment, es va fer servir un qüestionari similar administrat en línia. Les principals variables dependents es van definir de la manera següent: (i) participació en el seguiment (sí o no); (ii) transicions en l'estat i patró de consum de productes de tabac (iniciar el consum de tabac, recaure, deixar de fumar, passar de fumador/a diari/diària a ocasional i viceversa, passar de consum de només cigarretes a consum combinat i viceversa, canviar d'un producte a un altre i reduir el consum de cigarrets ≥ 5 cigarrets per dia (CPD) vs continuar amb el mateix estat o patró de consum

de tabac basal); (iii) transicions en les actituds cap al rol dels/les professionals i organitzacions sanitàries en el control del tabaquisme (passar d'estar en desacord a l'estudi basal a estar en acord en el seguiment vs. continuar en desacord); i (iv) transicions en la formació rebuda durant el grau d'Infermeria sobre tabaquisme (passar de no haver rebut la formació a l'estudi basal a haver-la rebut en el seguiment vs. seguir sense haver-la rebut). Com a variables independents es van incloure les variables sociodemogràfiques i les característiques de consum de tabac en l'estudi basal i seguiment dels/les participants. En l'anàlisi descriptiu es van calcular les prevalences (%) i els corresponents intervals de confiança (IC) del 95%. En l'anàlisi bivariat, es va utilitzar la prova Chi-quadrat i el test exacte de Fisher per a les variables qualitatives i en l'anàlisi multivariat es van utilitzar models de regressió logística per calcular les odds ràtios ajustades (ORa) i els corresponents IC95%.

Resultats: Dels/les 4.381 estudiants d'Infermeria de l'estudi basal, un total de 1.252 (25%) van participar en el seguiment. La probabilitat de participar en el seguiment va ser major en les persones amb les següents característiques: ser dona (ORa = 1,76; IC95%: 1,40–2,15), tenir ≤ 19 anys (ORa = 1,43; IC95 %: 1,10–1,86) i mai haver fumat (ORa = 1,44; IC95%: 1,21–1,75), en comparació amb els homes, persones de ≥ 25 anys i els/les fumadors/es.

Durant el període de seguiment, els/les estudiants d'Infermeria van experimentar diverses transicions en el seu estat i patró de consum de tabac. Entre els/les fumadors/es de l'estudi basal (incloent-hi tant els/les fumadors/es diaris/diàries i ocasionals), el 28,3% van deixar de fumar i el 60,8% van reduir el consum de tabac en almenys 5 CPD en el seguiment. Els/les consumidors/es ocasionals van presentar una major probabilitat de deixar de fumar (ORa = 2,88, IC95% 1,49–5,58), però, juntament amb els/les fumadors/es amb baixa dependència, van tenir menor probabilitat de reduir el consum, (ORa = 0,13, IC95% 0,06–0,30 and ORa = 0,38, IC95% 0,16–0,89, respectivament), en comparació dels/les fumadors/es diaris/diàries i els/les que van reportar una mitjana o alta dependència al estudi basal. A més, el 12,1% dels/les fumadors/es diaris/diàries van canviar a un consum ocasional, mentre que el 36,2% dels/les fumadors/es ocasionals van passar a consum diari. Entre aquells/es que fumaven exclusivament cigarrets, el 14,2% van començar a consumir productes combinats, mentre que el 48,4% dels/les que feien de forma inicial o consum combinat van passar a només cigarrets. D'altra banda, dels/les mai fumadors/es, el 4,6% van iniciar el consum de tabac en el seguiment i el 23,2% dels/les exfumadors/es van recaure. A conseqüència d'aquestes transicions, la prevalença global de fumadors/es va disminuir del 29,7% al 23,6% entre l'estudi basal i el seguiment. No obstant això, les proporcions de fumadors/es diaris/diàries

i ocasionals amb prou feines van variar (62,0% i 38,0% al basal i 63,6% i 36,4% al seguiment). La prevalença d'exfumadors/es va augmentar del 13,1% al 19,4%, mentre que la prevalença de mai fumadors/es es va mantenir estable.

D'altra banda, més del 50% dels/es estudiants d'Infermeria van adquirir actituds positives envers el rol dels/les professionals i les organitzacions sanitàries en el control del tabaquisme entre l'estudi basal i el seguiment. Això va ser més probable entre els/es mai fumadors/es i els/les exfumadors/es que entre els/les fumadors/es (totes les ORa > 2,00), però menys probable entre els/les participants dels darrers cursos del Grau d'Infermeria (3r i 4t) (ORa = 0,64, 0,42–0,96) que els/les dels primers cursos (1r i 2n) .

Finalment, més del 60% dels/les participants van passar de no haver rebut formació sobre tabaquisme durant el grau d'Infermeria a haver-la rebut durant el seguiment. Això va ser menys probable entre els/les estudiants dels darrers cursos del Grau d'Infermeria (3r i 4t) (totes les ORa < 0,50) i els/les mai fumadors/es (tote les ORa < 0,70) en comparació amb els/les participants dels primers cursos (1r i 2n) i els/les fumadors/es.

Conclusions: Els/les estudiants d'Infermeria seguits van experimentar diversos canvis en l'estat i el patró de consum de tabac, actituds i formació en tabaquisme entre l'estudi basal i el seguiment. En termes de participació, es va observar que ser dona, ≤ 19 anys d'edat i mai haver fumat van ser predictors de seguiment. Cosa que suggereix la importància d'aquestes variables en la continuïtat de la participació en estudis d'aquesta naturalesa. A més, el consum ocasional i una baixa dependència a la nicotina van emergir com a factors determinants en les transicions en l'estat i patró de consum de tabac. Sumat a això, els resultats van mostrar que els/les participants que estaven en els darrers cursos acadèmics van tenir menor probabilitat d'adquirir actituds positives i formació en el seguiment. D'altra banda, ser exfumador/a i mai haver fumat es va associar amb l'adquisició d'actituds positives, encara que també es va relacionar amb la manca de formació en tabaquisme durant el període de seguiment.

En conjunt, aquestes troballes subratllen la necessitat urgent d'implementar estratègies efectives adreçades a prevenir el consum de tabac, promocionar la cessació tabàquica, enfortir la formació en tabaquisme i promoure la visió de rol exemplar entre els/les estudiants d'Infermeria. Aquestes accions són fonamentals per abordar el problema persistent del tabaquisme i el seu impacte a la salut pública, especialment en els/les futurs/es professionals de la salut.

ABSTRACT

Background: Tobacco use remains the most important public health problem, representing the leading cause of preventable morbidity and mortality worldwide. Despite the known consequences of tobacco use, it remains highly prevalent in many countries, Spain being a notable example.

Health professionals, especially nurses, play a key role in the prevention and control of tobacco use. Nevertheless, it is of concern that many of these professionals have a high prevalence of tobacco use, as well as deficiencies in their knowledge, attitudes and training related to smoking. These limitations negatively affect their ability to implement effective smoking cessation interventions. The high prevalence of tobacco use and lack of smoking knowledge, attitudes, and training are also observed among nursing students. However, although these factors will influence their future professional practice as nurses, at present, there is no detailed knowledge about the individual evolution experienced by nursing students throughout their university education in relation to these variables, nor are the factors that influence these changes known.

Aim: To examine changes in tobacco product use, training, and attitudes towards smoking in a cohort of nursing students, comparing data obtained in the baseline (2015–2016) with those of the follow-up (2018–2019).

Methods: Prospective longitudinal study conducted among nursing students in Catalonia (Spain) between 2015–2016 and 2018–2019. At baseline, we used a self-administered paper-and-pencil questionnaire, and, at follow-up, we launched an online survey based in the baseline questionnaire. The main dependent variables were (i) participation in the follow-up (yes or no), (ii) transitions in smoking status and tobacco use patterns (smoking initiation, relapsing, quit smoking, switching from daily to nondaily smoking and vice versa, switching from cigarette-only consumption to poly-tobacco use and vice versa, switching between products and reducing cigarette consumption ≥ 5 cigarettes per day (CPD) vs. continuing with the same smoking status or tobacco use patterns of the baseline), (iii) transitions in attitudes towards the role of health professionals and organizations in tobacco control (switching from disagreement at baseline to agreement at follow-up vs. continuing to

disagree), and (iv) transitions in the training received during the Bachelor's Degree in Nursing on tobacco control (from not having received the training at baseline to having received it at follow-up vs. continuing without having received it). As independent variables, we included the sociodemographic variables and tobacco use characteristics at baseline and follow-up of the participants. In the descriptive analysis we calculated the prevalence (%) and the corresponding 95% confidence intervals (CI), in the bivariate analysis we used the Chi-square test and Fisher's exact test for the qualitative variables, and in the multivariate analysis we used logistic regression models to calculate the adjusted Odds Ratios (aOR) and their 95% CI.

Results: Of the 4,381 nursing students in the baseline study, a total of 1,252 (25%) participated in the follow-up. The likelihood of participating in follow-up was higher in those with the following characteristics: being female (ORa = 1.76; 95% CI: 1.40-2.15), being ≤ 19 years old (ORa = 1.43; 95% CI: 1.10-1.86), and never having smoked (ORa = 1.44; 95% CI: 1.21-1.75), compared with men, persons aged ≥ 25 years, and smokers.

During the follow-up period, the nursing students experienced several transitions in their smoking status and tobacco use pattern. Among smokers at baseline (including both daily and occasional smokers), 28.3% quit smoking and 60.8% reduced their smoking by at least 5 CPD at follow-up. Occasional users were more likely to quit smoking (ORa = 2.88, 95%CI 1.49-5.58), but, together with smokers with low dependence, were less likely to reduce consumption (ORa = 0.13, 95%CI 0.06-0.30 and ORa = 0.38, 95%CI 0.16-0.89, respectively), compared to daily smokers and those who reported medium or high dependence at baseline. In addition, 12.1% of daily smokers switched to occasional use, while 36.2% of occasional smokers switched to daily use. Among those who exclusively smoked cigarettes, 14.2% started to consume combined products, while 48.4% of those who initially smoked combined products switched to cigarettes only use. Of never smokers, 4.6% initiated tobacco use at follow-up and 23.2% of former smokers relapsed. As a result of these transitions, the overall prevalence of smoking decreased from 29.7% to 23.6% between baseline and follow-up. However, the proportions of daily and occasional smokers hardly changed (62.0% and 38.0% at baseline and 63.6% and 36.4% at follow-up). The prevalence of ex-smokers increased from 13.1% to 19.4%, while the prevalence of never smokers remained stable.

On the other hand, more than 50% of the nursing students acquired positive attitudes towards the role of health professionals and organizations in smoking control between baseline and follow-up. This was more likely among never smokers and ex-smokers (all ORa > 2,00) than among smokers, but less likely among participants in the last years of the Bachelor's Degree in Nursing (3rd and 4th) (ORa = 0,64, 0,42–0,96) than those in the first years (1st and 2nd).

Finally, more than 60% of participants transitioned from not having received smoking education during the Bachelor's Degree in Nursing to having received it during follow-up. This was less likely among students in the last years of the Bachelor's Degree in Nursing (3rd and 4th) (all ORa < 0,50) and never smokers (all ORa < 0,70) compared to participants in the first years (1st and 2nd) and current smokers.

Conclusions: The followed nursing students experienced various changes in their smoking status and patterns, attitudes, and training in tobacco control between baseline and follow-up. Regarding participation, it was observed that being female, ≤ 19 years old, and never smoker were predictors of follow-up, suggesting the importance of these variables in the retention of this participants in such studies. In addition, occasional smoking and low nicotine dependence emerged as determinants of transition in smoking status and tobacco use patterns. In addition, the results revealed that participants who were in their last academic years at baseline were less likely to acquire positive attitudes and training at follow-up. On the other hand, being a former smoker and never having smoked was associated with the acquisition of positive attitudes, although it was also related to the lack of training toward tobacco control during the follow-up period.

Overall, these findings underscore the urgent need to implement effective strategies aimed at preventing tobacco use, promoting smoking cessation, strengthening smoking education, and promoting exemplary role vision among nursing students. These actions are essential to address the persistent problem of tobacco use and its impact on public health, especially in future health professionals.

LISTA DE ABREVIATURAS

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ACHA:	American College Health Association (Asociación Americana de la Salud de los Estudiantes Universitarios)
ACV:	Accidentes cerebrovasculares
AECC:	Asociación Española Contra el Cáncer
CDC:	Centers for Disease Control and Prevention (Centros para el Control y la Prevención de Enfermedad)
CIE-11:	Código Internacional de Enfermedades versión 11
CMCT:	Convenio Marco de la OMS para el Control del Tabaco
CNPT:	Comité Nacional para la Prevención del Tabaquismo
CPD:	Cigarrillos (consumidos) por día
CPD:	Cigarrillos por día
DALYs:	Disability-Adjusted Life Years (Años de vida ajustados por discapacidad)
DSM-V:	Diagnostic and Statistical Manual of Mental Disorders 5th edition (Manual Diagnóstico y Estadístico de los Trastornos Mentales 5ª edición)
e-cigarrillos:	Cigarrillos electrónicos
ECT:	Escala de Control del Tabaquismo
ECTEC:	Estudio del Consumo de Tabaco entre estudiantes del grado universitario de Enfermería en Cataluña
ECTEC-S:	Estudio de Seguimiento del Consumo de Tabaco entre estudiantes del grado universitario de Enfermería en Cataluña
ENTs:	Enfermedades Cónicas No Transmisibles
EPOC:	Enfermedad Pulmonar Obstructiva Crónica
et al.:	et alii
EUA.:	Estados Unidos de América
GBD:	Global Burden of Diseases (Carga Global de Enfermedad)
GHPSS:	Global Health Professional student survey (Encuestas Mundiales de Estudiantes de Profesiones de la Salud, EMEPS)

LISTA DE ABREVIATURAS

HAT:	Humo Ambiental de Tabaco
IAM:	Infarto Agudo de Miocardio
IC95%:	Índice de Confianza del 95%
ICO:	Instituto Catalán de Oncología
MPOWER:	Monitor, Protect, Offer, Warn, Enforce, Raise (Monitorizar, Proteger, Ofrecer, Advertir, Hacer cumplir, Aumentar)
NHS:	Nurses Health Study
OMS:	Organización Mundial de la Salud
ORa:	Odds Ratio ajustada (Razón de probabilidad)
Pág.:	Página
SEOM:	Sociedad Española de Oncología Médica
SUN:	Seguimiento Universidad de Navarra
TSN:	Terapias Sustitutivas de Nicotina
UCT:	Unidad de Control de Tabaco
UE:	Unión Europea
uniHCos:	Universitarios, Hábitos de Vida, Cohorte de Seguimiento
vs:	versus

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1. El consumo de tabaco como problema de salud pública

El consumo de tabaco sigue siendo el problema de salud pública más importante por ser la principal causa evitable de morbilidad y mortalidad en el mundo. Además, conlleva significativos costos económicos y daño medioambiental (OMS, 2023; Zafeiridou et al., 2018). En la última década, los países han realizado considerables progresos en la prevención y control del tabaquismo que han contribuido a disminuir la prevalencia global del consumo de tabaco (Feliu et al., 2019; OMS, 2023). No obstante, debido al gradual crecimiento y al envejecimiento de la población, el número total de personas que fuman sigue siendo elevado, así como la carga de enfermedad y muerte relacionadas (OMS, 2023).

En la actualidad, se estima que alrededor de 1 billón de personas de 15 años o más en el mundo son consumidoras de algún producto de tabaco, de las cuales al menos la mitad sufrirán enfermedades y complicaciones relacionadas con el tabaquismo que les costará la vida (OMS, 2008; OMS, 2023). En 2022, se registraron aproximadamente 8,7 millones de muertes en todo el mundo atribuibles al tabaco, incluyendo 1,3 millones de personas que fallecieron debido a la exposición al humo ambiental del tabaco (HAT) (OMS, 2023).

También, preocupa la disparidad en la distribución del tabaquismo y el reciente aumento de la prevalencia del consumo de los nuevos productos de tabaco y nicotina, especialmente, entre los/las jóvenes (OMS, 2023). Esta tendencia ha llevado a la Organización Mundial de la Salud (OMS) a ampliar la definición del tabaquismo, incluyendo en ella el consumo de todos los productos que contienen nicotina. Como resultado, en la actual Clasificación Internacional de Enfermedades (CIE-11), el consumo de tabaco está catalogado como “Trastornos debidos al consumo de nicotina” (6C4A) (OMS, 2019; OMS, 2021).

1.1. Efectos del consumo de tabaco

Desde que las primeras investigaciones epidemiológicas evidenciaran la relación causal entre el consumo de tabaco y el cáncer de pulmón a mediados del siglo XX (Doll & Hill, 1950; Doll & Hill, 1954; Hammond & Horn, 1954; Hammond & Horn, 1958; Levin et al., 1950; Schrek et al., 1950; Wynder y Graham, 1950), el número de patologías asociadas al

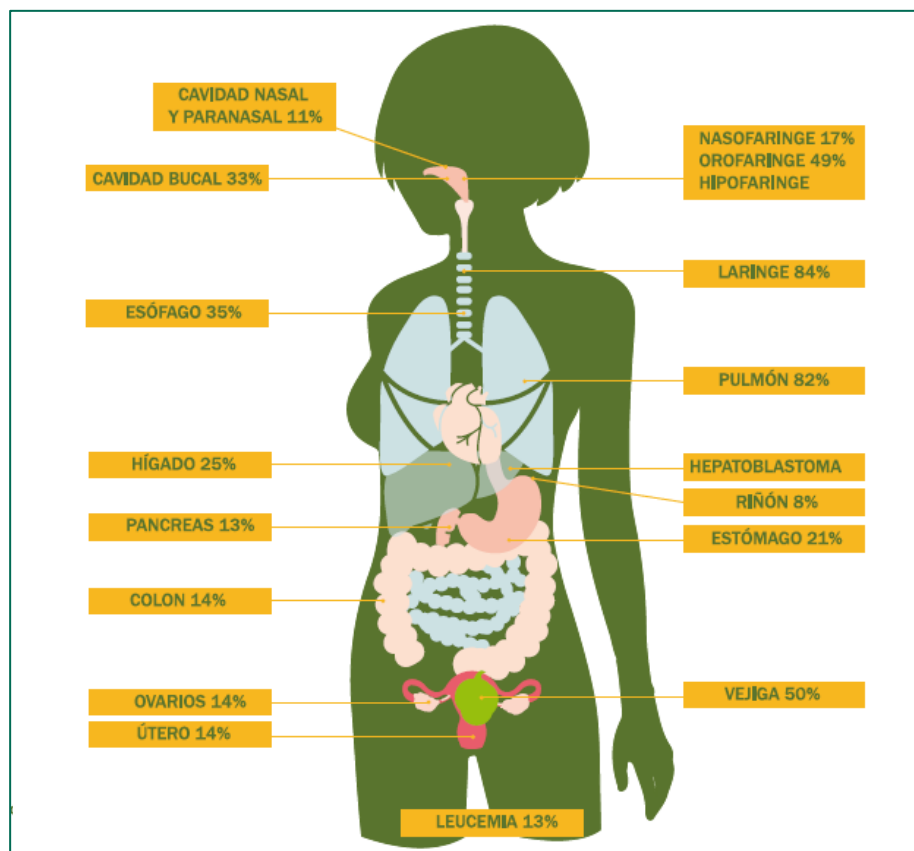
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tabaquismo ha crecido enormemente. Se ha demostrado que el consumo de tabaco perjudica prácticamente todos los órganos del cuerpo de la persona que lo utiliza (National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, 2014). De hecho, el consumo de tabaco se ha relacionado con más de 25 patologías, siendo la causa principal de múltiples Enfermedades Crónicas no Transmisibles (ENTs) altamente mortales a nivel mundial, entre las que destacan las enfermedades oncológicas, las cardiovasculares y las respiratorias (National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, 2014).

El consumo de tabaco es el responsable de hasta un 33% de cánceres a nivel mundial, y de hasta el 22% de las muertes por cáncer (Sociedad Española de Oncología Médica [SEOM], 2022). Los cánceres con mayor asociación con el consumo de tabaco son el de laringe, de pulmón, de vejiga y de orofaringe (Figura 1), con un riesgo relativo que, en la mayoría de los casos, supera el 85% (Asociación Española Contra el Cáncer [AECC], 2018; Dai et al., 2022). Además, el consumo de tabaco es el principal factor de riesgo de las enfermedades cardiovasculares, siendo este riesgo directamente proporcional a la cantidad de cigarrillos fumados por día (CPD) y a los años de consumo. Entre las enfermedades cardiovasculares causadas por el consumo de tabaco destacan las enfermedades coronarias, la enfermedad vascular arteriosclerótica periférica o aterosclerosis, el aneurisma aórtico, los accidentes cerebrovasculares (ACV) y la hipertensión arterial (National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, 2014). Finalmente, entre las enfermedades respiratorias relacionadas con el consumo de tabaco más prevalentes encontramos la Enfermedad Pulmonar Obstructiva Crónica (EPOC), la bronquitis crónica, las infecciones respiratorias como el resfriado, la gripe, la bronquitis aguda, la neumonía o la tuberculosis y, las enfermedades intersticiales (National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, 2014).

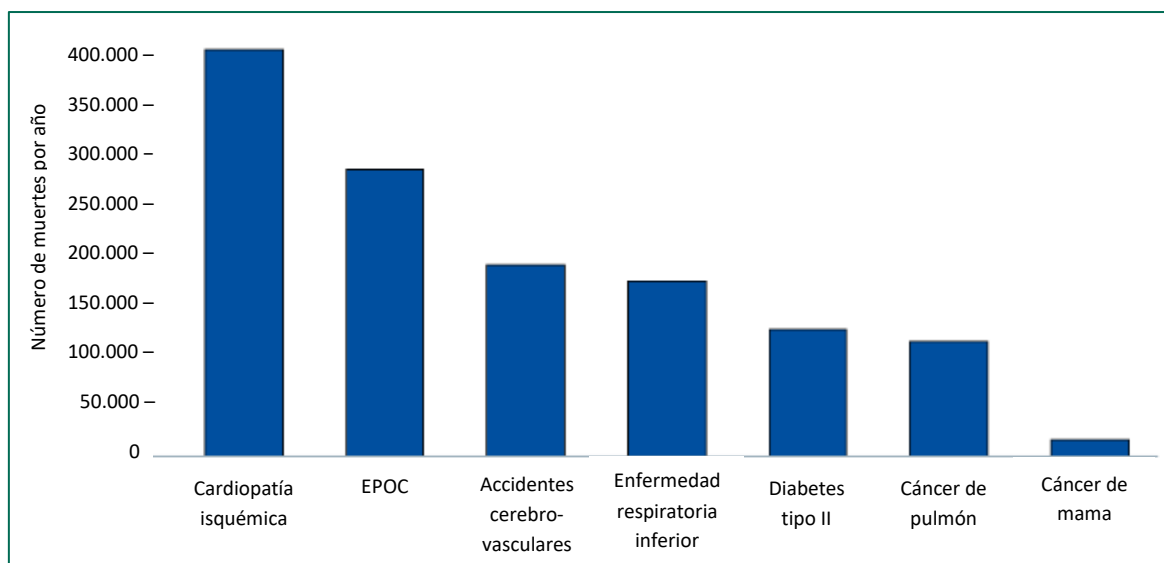
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Figura 1: Cánceres relacionados con el consumo de tabaco. Fuente: Asociación Española Contra el Cáncer (AECC), 2018



El consumo de tabaco es el segundo factor de riesgo de mortalidad en mujeres y hombres, siendo el responsable de aproximadamente el 10% de las muertes anuales en el mundo, lo que se traduce en casi 7,4 millones de defunciones (OMS, 2012; OMS, 2023). Consecuentemente, el consumo de tabaco supone una pérdida de catorce años en la esperanza de vida de la persona fumadora, con una carga de enfermedad global del 7,3% (en Años de vida ajustados por discapacidad, Disability-Adjusted Life Years (DALYs) en inglés) (Comisión Europea, 2021; Institute for Health Metrics and Evaluation, 2018). La exposición al HAT es también un factor de riesgo de morbi-mortalidad en las personas, causando 1,3 millones de muertes en el mundo (2,2% del total de muertes). Esto se debe a los graves problemas de salud que produce y sus complicaciones, con una mayor carga de mortalidad en mujeres y niños/as (Institute for Health Metrics and Evaluation, 2018; OMS, 2023). Los principales problemas de salud mortales causados por la exposición al HAT son la cardiopatía isquémica, la EPOC, los accidentes cerebrovasculares, el cáncer de pulmón y de mama y la diabetes mellitus tipo II en adultos y las patologías respiratorias, como la enfermedad respiratoria inferior, en niños (Figura 2).

Figura 2: Principales causas de muerte en el mundo debido a la exposición al humo ambiental del tabaco. Fuente: OMS, 2023



De manera relacionada, el tabaquismo, consecuentemente, genera graves daños económicos en términos de costes de atención a la salud y pérdida de productividad debido a la morbi-mortalidad asociada al consumo de tabaco y a la exposición al HAT, lo que supone un valor para la economía mundial superior a 2 trillones de dólares anuales (Drope et al., 2022). Sumado a ello, el consumo de tabaco tiene un alto impacto negativo en el medioambiente debido al gran volumen de aire, agua y tierras que se contaminan y la generación de megatoneladas de residuos sólidos durante su cadena de producción (Zafeiridou et al., 2018).

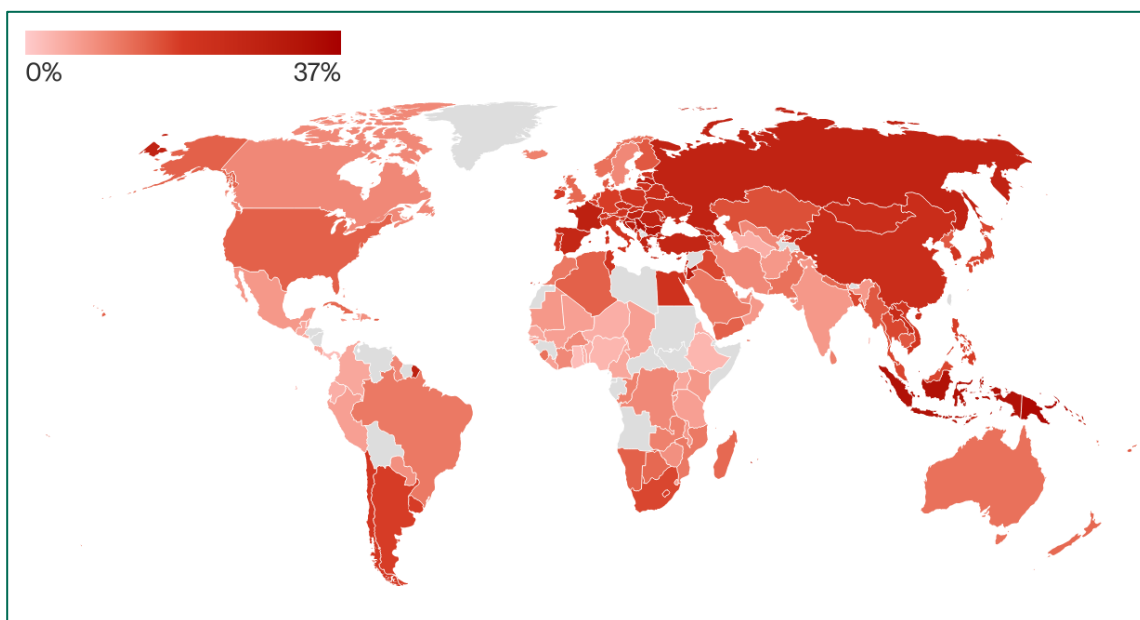
1.2. Prevalencia global del consumo de tabaco

Aunque los riesgos del consumo de tabaco han sido ampliamente documentados, su consumo sigue siendo muy frecuente en muchos países (Figura 3). En 2020, la prevalencia ajustada por edad de consumo de tabaco entre la población mundial de ≥ 15 años fue del 22,3%, siendo significativamente mayor en hombres (36,7%) que en mujeres (7,8%) (OMS, 2021). La mayoría de los/las fumadores/as (80%) viven en países de renta media, mientras que los países de renta baja o alta cuentan con el 20% del total de fumadores/as. La distribución de la proporción de mujeres y hombres fumadoras/es por grupos de renta de los países también es heterogénea, dado que más del 75% de los hombres fumadores viven

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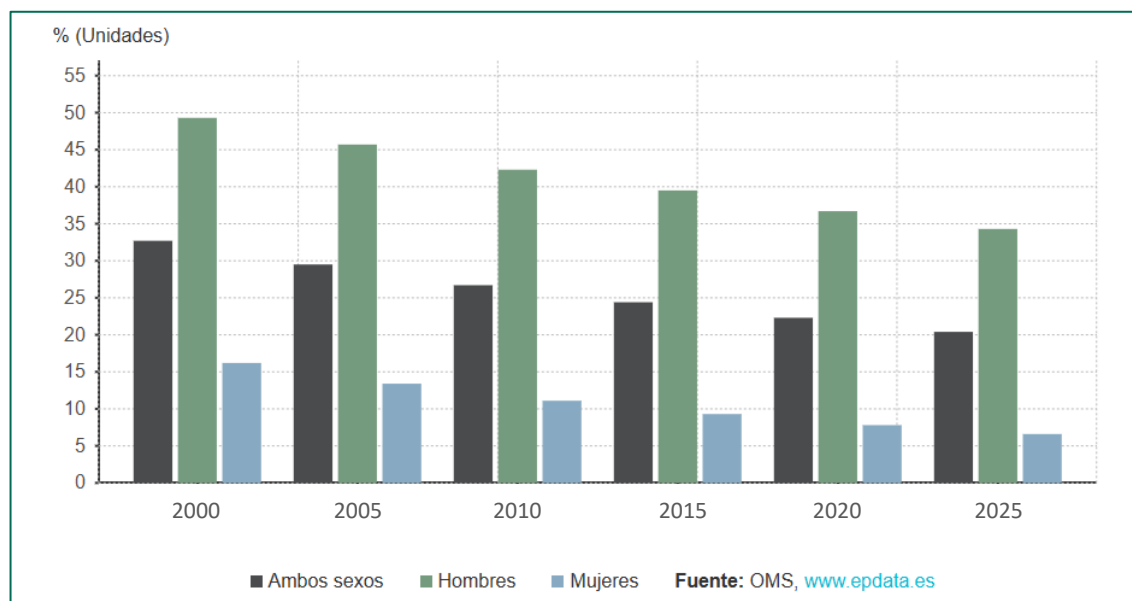
en países de renta media o alta. En cambio, la mayor proporción de mujeres fumadoras se encuentra en los países de renta alta, con una prevalencia del 53% (OMS, 2023).

Figura 3: Prevalencia (%) de personas fumadoras (a diario) en la población mundial ≥ 15 años en 2019. Fuente: The Tobacco Atlas 7^a edición



Entre el 2000 y el 2020, el consumo de tabaco ha disminuido en todos los grupos de renta de los países, pasando de una prevalencia global del 32,7% en el 2000 al 22,3% en el 2020, lo que supone una reducción relativa del 32% en 20 años (Figura 4). Para el 2025, se prevé que la prevalencia de consumo siga disminuyendo hasta alcanzar el 20,4%. Entre los hombres, la prevalencia global del tabaquismo se redujo un 27%, bajando del 49,3% en 2000 al 36,7% en 2020. Entre las mujeres, la prevalencia global se redujo un 52%; del 16,2% en 2000 al 7,8% en 2020 (OMS, 2021).

Figura 4: Evolución de la prevalencia de consumo de tabaco entre la población mundial igual o mayor a 15 años y estimación para el 2025. Fuente: OMS, 2021



La prevalencia global de consumo de tabaco en la Unión Europea (UE) es considerablemente mayor a la media mundial, siendo la segunda región con mayor prevalencia de fumadores/as (25,3% en el 2020). Además, la prevalencia entre los hombres de la UE (26% en 2020) es inferior a la mundial, sin embargo, la proporción de mujeres europeas que consumen tabaco es considerablemente mayor (21% en 2020). En la UE, el consumo de tabaco se concentra mayoritariamente en el grupo de edad de 25–54 años, con unas prevalencias del 27% al 30%, mientras que, a nivel mundial, el consumo de tabaco se encuentra en la franja de edad 35–64 años, con unas tasas de consumo que oscilan entre el 26,3% y el 28,5%. La prevalencia de consumo de tabaco entre los/las jóvenes europeos (15–24 años) es también mayor a la mundial; 20% vs. 14% (Comisión Europea, 2021; OMS, 2021).

En España, la prevalencia de consumo de tabaco se sitúa en torno el 22% (20% fumadores/as diarios/as y el 2% fumadores/as ocasionales), siendo también mayor en hombres (23%) que en mujeres (16%). El consumo diario es más frecuente en el grupo de edad 25–34 años, con una prevalencia del 26%, mientras que el consumo ocasional es mayor en el grupo de edad 15–24 años, con una prevalencia del 4% (Observatorio de la AECC, 2022).

Del mismo modo que existen diferencias en la distribución de la prevalencia de consumo de tabaco entre regiones, también existen variaciones en las características del patrón de

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consumo, como pueden ser la edad de inicio, tipo de producto consumido, frecuencia y cantidad de consumo, etc. Generalmente, el inicio y consolidación del consumo de tabaco ocurre a edad temprana, dado que el 99% de los/las fumadores/as empiezan a consumir productos de tabaco antes de los 26 años (OMS, 2023; U.S. Department of Health and Human Services, 2012). En Europa, la edad media de inicio del consumo se sitúa en los 17,8 años, aunque en España el inicio del consumo suele ser en la adolescencia, entre los 14,0 y los 14,4 años (Comisión Europea, 2021; Ministerio de Sanidad, Servicios Sociales e Igualdad, 2021; Schiaffino et al., 2003). Cabe señalar que el inicio del consumo temprano está estrechamente relacionado con el tabaquismo persistente en la edad adulta, desarrollado como consecuencia de la dependencia por la nicotina y la presencia de factores sociales (Fernández et al., 1999; U.S. Department of Health and Human Services, 2012).

Los productos de tabaco más consumidos suelen ser los fumados, entre los que se incluyen los cigarrillos manufacturados y liados a mano, los puros, las pipas y los puritos (Comisión Europea, 2021; Cornelius et al., 2022; OMS, 2021). No obstante, la prevalencia de otros productos novedosos, como los cigarrillos electrónicos (e-cigarrillos), la pipa de agua y los productos de tabaco calentado, ha aumentado considerablemente en los últimos años, especialmente entre los jóvenes (OMS, 2023). Concretamente, de acuerdo al Eurobarómetro del 2021, en Europa, el 80% de los/las fumadores/as usan cigarrillos manufacturados, el 20% usan cigarrillos liados a mano, el 4% usan purito, el 3% usan puros y el 2% usan pipas (estos porcentajes no son excluyentes). El consumo medio diario de cigarrillos entre los/las fumadores/as es de 14,2. Hasta el momento, los cigarrillos manufacturados predominan también como el producto 'de entrada' (*gateway* en inglés) en el consumo de tabaco, ya que la primera experiencia con el tabaco en la mayoría (81%) de los/las fumadores/as, exfumadores/as o los/las que han probado algún producto de tabaco ha sido con los cigarrillos manufacturados (Comisión Europea, 2021). La prevalencia de consumo regular de otros productos de tabaco es del 3% para las pipas de agua, 2% para los e-cigarrillos y el 1% para el tabaco calentado. Sin embargo, la prevalencia de haberlos usado alguna vez aumenta al 18% en caso de las pipas de agua, al 14% en de los e-cigarrillos y al 6% en los productos de tabaco calentado. Estos porcentajes, tanto de uso regular como de experimentación, están mostrando una preocupante tendencia al alza entre los/las jóvenes, quienes a menudo ven estos productos una puerta de entrada al consumo de tabaco, más que en el resto de población (Comisión Europea, 2021). Además, el aumento en el uso combinado de varios productos de tabaco también supone un nuevo reto en la prevención

y control del tabaquismo, y esta tendencia también es más prevalente entre los/las jóvenes, con tasas que llegan hasta el 24% (Haardöfer et al., 2016; OMS, 2023). Es importante destacar que el consumo de cannabis, a menudo realizado en combinación con tabaco, es también una tendencia muy preocupante entre los/las jóvenes, con casi el 15% de los/las jóvenes que lo utilizan, en comparación con el 3% en la población >55 años. Entre los/las jóvenes, la proporción de consumidores/as de cannabis de 18 a 24 años es mayor que entre los/las menores de 18 años (17% frente al 8%) (Comisión Europea, 2021).

1.3. Medidas de prevención y control del tabaquismo

El elevado número de personas que consumen tabaco y el gran volumen de muertes, discapacidades y coste económico atribuible ha llevado a los países a tomar diversas medidas para la prevención y control del tabaco, considerando esta problemática una urgente prioridad de salud global. Estas medidas tienen como objetivos principales fomentar los estilos de vida sin tabaco entre la población joven, reducir el consumo de tabaco, ayudar a la población fumadora a que abandone el consumo, ampliar los espacios sin humo y limitar las actividades de promoción de tabaco con el fin último de garantizar la máxima salud a las personas.

Entre las medidas establecidas más importantes se encuentra la implementación del Convenio Marco de la OMS para el Control del Tabaco (CMCT), que entró en vigor en febrero de 2005 (OMS, 2003). Este convenio representa el primer tratado internacional de salud pública y es uno de los tratados más ampliamente adoptados en la historia de las Naciones Unidas, al que se han suscrito más de 180 Estados miembros, que en conjunto representan el 90% de la población mundial. Este tratado, basado en la evidencia científica, contiene directrices y requisitos para la implementación de las medidas de control del tabaco y establece criterios estrictos para vigilar su cumplimiento (OMS, 2003).

Para ayudar a los países en la implementación del CMCT, en el año 2007, la OMS lanzó la estrategia «MPOWER», un plan integrado por las seis acciones más importantes y coste-efectivas para la prevención y control del tabaco (OMS, 2007). Su nombre, MPOWER, proviene de las iniciales (en inglés) de cada una de las seis medidas que incluye, que son:

- 1) *Monitor*: monitorizar el consumo de tabaco y las políticas de prevención.
- 2) *Protect*: proteger a la población del humo ambiental de tabaco (HAT).
- 3) *Offer*: ofrecer ayuda para dejar el tabaco.

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- 4) *Warn*: advertir de los peligros del tabaco.
- 5) *Enforce*: hacer cumplir las prohibiciones sobre publicidad, promoción y patrocinio del tabaco.
- 6) *Raise*: aumentar los impuestos al tabaco.

Estas medidas ofrecen asistencia práctica a los países para elaborar sus propias políticas de control del tabaquismo, siguiendo las directrices del CMCT OMS, para reducir la prevalencia de consumo de tabaco, la morbimortalidad asociada a su consumo y la exposición al HAT. De esta forma, los países pueden constatar su evolución en cuanto al grado de implementación de estas medidas y comparar su situación con la de otro/s Estados miembros. Así pues, también sirve como herramienta de evaluación del grado de consenso entre las políticas de control del tabaquismo del propio país y las acciones recomendadas en este plan (OMS, 2007).

En el caso concreto de España, además de la ratificación del CMCT de la OMS en 2005, se han desarrollado diversas políticas de prevención y control del tabaquismo que, en su momento, tuvieron un importante impacto positivo en la reducción del consumo de tabaco y de la exposición al HAT (Fernández et al., 2017; Grupo de Trabajo sobre Tabaquismo de la Sociedad Española de Epidemiología [SEE], 2017). Entre ellas, destacan la Ley 28/2005 y la 42/2010, que regulan la venta, el suministro, el consumo y la publicidad de los productos del tabaco (Grupo de Trabajo sobre Tabaquismo de la SEE, 2017). No obstante, desde su última modificación, en 2010, estas políticas no han progresado (Feliu et al 2022). De hecho, este estancamiento se ha producido de forma global, ya que, en los últimos años, la evolución en la implementación de las medidas «MPOWER» ha sido desfavorable (Joossens et al., 2017; Joossens et al., 2022). Según la Escala de Control del Tabaquismo (ECT) (www.tobaccocontrolscale.org), en la que se monitorizan de forma periódica varias políticas de control del tabaquismo en los países de Europa, del 2004 al 2016 España progresó favorablemente en la implementación de medidas de prevención y control del tabaquismo, pasando del puesto 24 en la clasificación de los países europeos que mejor implementan las políticas de control del tabaquismo al puesto número 8 (Joossens et al., 2017). Sin embargo, desde entonces hasta la actualidad, está retrocediendo en la clasificación llegando al puesto 11 en la ECT de 2022 (Joossens et al., 2022), lo que deja en evidencia el mejor progreso de otros países en la implementación de medidas de control del tabaquismo frente a España. Entre las medidas más coste-efectivas con menor implementación en España destacan el empaquetado neutro, el aumento de los impuestos y la ejecución de

intervenciones de cesación tabáquica. Por tanto, en los próximos años, la mortalidad atribuible al tabaquismo estará estrechamente relacionada con el grado de implementación de estas medidas (Peruga et al., 2021; Villalbí, 2019).

1.4. Rol de los/las profesionales sanitarios en la prevención y control del tabaquismo

En el abordaje del tabaquismo, están implicados varios agentes sociales como son los/las políticos/as, los/las educadores/as y, en gran parte, los/las profesionales de la salud (OMS, 1992; OMS, 2005). Los/las profesionales de la salud poseen un importante potencial para contribuir de manera significativa en la prevención y control del tabaquismo en la comunidad. Es por ello por lo que la OMS insta a los/las profesionales de la salud a desempeñar una función educadora, social, asistencial y modélica para sensibilizar a las personas sobre los riesgos derivados del consumo de tabaco y promover el abandono del tabaquismo – acciones que quedan implícitas en la “O” de Ofrecer ayuda de las políticas del MPOWER. Asimismo, para un correcto desempeño de su rol activo en el control del tabaco, en su código de buenas prácticas, la OMS remarca las seis principales acciones de los/las profesionales de la salud (OMS, 2005). Estas acciones incluyen: (i) la promoción de estilos de vida saludables; (ii) la educación y sensibilización sobre las consecuencias para la salud que conlleva el consumo de tabaco y la exposición al HAT; (iii) la promoción de las intervenciones de cesación tabáquica; (iv) el fomento de los espacios sin humo; (v) la prohibición de las actividades de venta y promoción de tabaco, con el fin último de promover la salud y, por último; (vi) la influencia en las instituciones sanitarias y educativas para que incluyan el control del tabaco en los planes de estudio (OMS, 2005). Entre estas acciones, la OMS considera la implementación de las intervenciones de cesación tabáquica como uno de los pilares fundamentales en la actuación en la prevención y control del tabaquismo por ser una de las medidas más coste-efectivas en la reducción del consumo de tabaco (OMS, 2023).

Existen diferentes niveles de intervención para ayudar a dejar de fumar, desde las intervenciones comunitarias, intervención breve (o consejo breve o intervención mínima o consejo mínimo), intervención intensiva, intervención motivacional, intervención especializada (o tratamiento especializado), intervenciones con material de autoayuda y las intervenciones a distancia (teleasistencia, recursos web, etc.) (European Network for

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Smoking and Tobacco Prevention, 2021; U.S. Department of Health and Human Services, 2009). Concretamente, el consejo breve combinado con farmacoterapia es una de las intervenciones clínicas más coste-efectivas para promover la cesación tabáquica, motivo por el que está considerado como la estrategia de elección en el abordaje primario del tabaquismo (Rigotti et al., 2022). Esta intervención se estructura en cinco partes; *Ask*=averiguar, *Advise*=aconsejar, *Assess*=evaluar, *Assist*=ayudar y *Arrange follow-up*=acordar un seguimiento, por ello se denomina también como la estrategia de las 5 "Aes". La primera parte (*Ask*) consiste en la identificación y diagnóstico de las personas fumadoras, que se debe realizar de forma sistemática y registrarse en el historial clínico de todos/as los/las pacientes. En la segunda parte (*Advise*), se debe aconsejar a todos los/las pacientes fumadores/as a cesar el consumo y, en la tercera (*Assess*), evaluar la fase de cambio de conducta en la que se encuentra y su nivel de dependencia, motivación y autoeficacia para dejar de fumar. Por último, se debe ofrecer ayuda (y tratamiento farmacológico si es necesario) a los/las pacientes que tienen la intención de dejar de fumar (*Assist*) y establecer seguimiento (*Arrange follow-up*) (U.S. Department of Health and Human Services, 2009).

Existe suficiente evidencia que demuestra que el grado de implementación del rol de los/las profesionales sanitarios en la prevención y control del tabaquismo, y en especial el de la implementación del consejo breve, está estrechamente relacionado con su estado de consumo de tabaco y sus creencias, actitudes, conocimientos y formación en tabaquismo (Chandrakumar y Adams, 2015; Duaso et al., 2017). Este hecho enfatiza la importancia de la monitorización de estas variables en este colectivo, y, sobre todo, en los/las profesionales de Enfermería, dado que son el grupo profesional sanitario más numeroso, más cercano al/la paciente y con mayor función educadora.

2. El consumo de tabaco entre los/las profesionales de Enfermería

Dado su rol fundamental en la prevención y control del tabaquismo, su mayor conocimiento de los riesgos para la salud asociados al tabaquismo y su exposición a pacientes con enfermedades relacionadas con el tabaquismo, se podría esperar que las tasas de tabaquismo entre los/las profesionales de Enfermería fueran prácticamente nulas. Sin embargo, a pesar de que algunos países informan de una prevalencia reducida de consumo de tabaco entre los/las profesionales de Enfermería, en su mayoría las tasas de tabaquismo no difieren significativamente de las de la población general (Duaso et al., 2017; Nilan et al., 2019).

2.1. Prevalencia de consumo de tabaco entre los/las profesionales de Enfermería

La mayoría de los estudios sobre consumo de tabaco realizados en el colectivo enfermero engloban diferentes grupos sanitarios, como Medicina, Fisioterapia, Farmacia, etc. Aunque existe una gran variabilidad en la prevalencia de consumo de tabaco reportada entre las diferentes categorías profesionales, debido, generalmente, a diferencias en la zona geográfica, año de medición y la definición empleada de fumador/a, la mayoría de los estudios coinciden en que el consumo de tabaco es una conducta ampliamente extendida entre los/las profesionales sanitarios, especialmente entre Enfermería (Duaso et al., 2017; Juranić et al., 2017; Martínez et al., 2016; Nilan et al., 2019; Pianori et al., 2017). Cabe señalar, que la prevalencia de consumo de tabaco entre profesionales sanitarios ha ido decreciendo en las últimas décadas siguiendo la misma tendencia que en la población general (Reyes Ureña et al., 2013).

En 2017, Juranić et al., publicaron un estudio sobre el consumo de tabaco entre 499 profesionales sanitarios de Croacia, encontrando una prevalencia global de consumo del 35,1%. También se han descrito resultados similares entre profesionales sanitarios de Italia, con una prevalencia global del 34,5% (Pianori et al., 2017).

En 2019, una revisión sistemática con metaanálisis, en la que se incluyeron 229 estudios a nivel mundial, determinó una prevalencia global de consumo de tabaco entre los/las profesionales sanitarios del 21%, siendo la prevalencia entre enfermeros/as la más elevada (24%), seguida de médicos/as (20%), odontólogos/as (18%) y farmacéuticos/as (14%) (Nilan et al., 2019). La prevalencia global de consumo era mayor entre hombres (31%) que en mujeres (17%). Además, detectaron una elevada prevalencia entre hombres médicos de países de ingresos medio-altos y medios-bajos y bajos juntos (35% y 45%, respectivamente) y entre mujeres enfermeras de países de ingresos altos y medio-altos (21% y 25%, respectivamente) (Nilan et al., 2019).

En otra revisión sistemática con metaanálisis que incluye estudios realizados únicamente entre profesionales de Enfermería, se mostró una variabilidad en la prevalencia de consumo en este colectivo entre el 4% y el 47,1%, siendo más alta en los países europeos, y en especial en España, que en los Estados Unidos de América (EUA). Los estudios españoles incluidos en la revisión contaban con una proporción de enfermeros/as fumadores/as entre el 26,7% y el 31,2%, dicha prevalencia era similar, y en algunos casos superior, a la de la población general (Duaso et al., 2017). No obstante, en otro estudio de prevalencia con metaanálisis

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español entre los/las profesionales sanitarios de 45 hospitales de Cataluña, la prevalencia de consumo de tabaco entre enfermeros/as (25,4%) fue ligeramente menor (Martínez et al., 2016). Aunque en este estudio los/las médicos/as y enfermeros/as fueron los grupos con menor prevalencia de consumo (16,4% y 25,4%, respectivamente), si comparamos la prevalencia global de consumo (28,1%) con las reportadas en otras regiones del mundo, las tasas de consumo de tabaco entre profesionales sanitarios españoles son mayores (Martínez et al., 2016; Nilan et al., 2019). Además, como se puede apreciar en los datos reportados anteriormente, la prevalencia de consumo entre los/las profesionales de Enfermería generalmente es más elevada que la de los/las profesionales de Medicina (Tabla 1).

Tabla 1: Prevalencia de consumo de tabaco entre los/las profesionales de Enfermería y Medicina reportadas en España. Fuente: elaboración propia

Autores	Prevalencia (%) de consumo de tabaco	
	Enfermería	Medicina
Casas et al. 2002	31,2%	15,8%
García et al. 2004	48,5%	33,1%
Fernández et al. 2005	30,1%	-
Pericás et al. 2007	26,7%	-
Reyes Ureña et al. 2013	25,6%	18,9%
Jiménez-Ruiz et al. 2015	13,2%	11,1%
Martínez et al. 2016	25,4%	16,4%
Ranchal Sánchez et al. 2018	-	6,5%

Entre los factores asociados al consumo de tabaco entre los/las profesionales de Enfermería destacan la presencia de fumadores/as en el entorno familiar o social, tener unas creencias, normas sociales y actitudes a favor del consumo de tabaco y el hecho de vivir sólo/a (Chandrakumar y Adams, 2015; Pianori et al., 2017).

2.2. Conocimientos, creencias y actitudes hacia la prevención y control del tabaquismo entre los/las profesionales de Enfermería

En relación con los conocimientos, creencias y actitudes hacia el tabaquismo entre los/las profesionales de Enfermería, también existen resultados diversos, dado que en la mayoría de los estudios se evalúan aspectos diferentes dentro de los conocimientos, creencias y actitudes hacia el tabaquismo. De forma general, los artículos coinciden en que los/las profesionales de Enfermería presentan creencias y actitudes positivas con relación al rol de los/las profesionales sanitarios en la prevención y control del tabaquismo (Chandrakumar y Adams, 2015; Jiménez-Ruiz et al., 2015; Juranić et al., 2017; Pianori et al., 2017). Sin embargo, su nivel de conocimientos acerca de los efectos nocivos del consumo de tabaco y de las estrategias de cesación tabáquica y su grado de implementación de las intervenciones para dejar de fumar son bajos (Chandrakumar y Adams, 2015; Duaso et al., 2017; Jimenez-Ruiz et al., 2015; Kelly et al., 2017; Lepage et al., 2015; Mak et al., 2018; Moysidou et al., 2016; Pianori et al., 2017).

En 2015, Chandrakumar y Adams publicaron una revisión bibliográfica en la que describían los conocimientos hacia las estrategias de cesación tabáquica y las creencias y actitudes hacia el consumo y la cesación tabáquica entre profesionales de Enfermería de diferentes países del mundo (Chandrakumar y Adams, 2015). El estudio refleja que, aunque la mayoría de los/las profesionales de Enfermería creían que deben implementar las intervenciones de cesación tabáquica, sus conocimientos y habilidades para implementarlas eran bajos. Resultados similares encontraron Moysidou et al., que reportaron un alto nivel de desconocimiento de las Terapias Sustitutivas de Nicotina (TSN) y de las características y regulación política de los e-cigarrillos entre médicos/as y enfermeros/as griegos/as (Moysidou et al., 2016). La puntuación global en relación con el nivel de conocimientos fue de 7,7 sobre 16, la cual refleja acentuadamente el escaso conocimiento en tabaquismo entre el colectivo enfermero (Moysidou et al., 2016).

En 2017, otros estudios realizados entre profesionales sanitarios de Croacia e Italia reforzaron los hallazgos reportados anteriormente, encontrando también creencias y actitudes positivas en relación con el rol de los/las profesionales sanitarios en la prevención y control del tabaquismo y bajo nivel de conocimientos (Juranić et al., 2017; Pianori et al., 2017). En el estudio croata, además de explorar el grado de acuerdo con su rol en la prevención y control del tabaquismo, Juranić et al., preguntaron si consideraban que la ley

antitabaco era justa para los/las fumadores/as y no fumadores/as y si había que vigilar cuando se fuma en presencia de pacientes, de no fumadores/as y de niños/as. En la mayoría de los casos hubo un alto grado de acuerdo, excepto para la afirmación de que la ley antitabaco era justa para los/las fumadores/as. En el estudio italiano, encontraron bajos porcentajes en el conocimiento de los efectos nocivos del consumo de tabaco y un alto de acuerdo con las políticas de control del tabaquismo (Pianori et al., 2017).

Las investigaciones entre profesionales de Enfermería españoles describen la misma situación. Por ejemplo, en un estudio descriptivo realizado por Jiménez-Ruiz et al., tan solo la mitad de los/las profesionales sanitarios (médico/as y enfermero/as) reconocieron que el consumo de tabaco era una enfermedad crónica y en la misma proporción afirmaron que la intervención más efectiva para ayudar al paciente a dejar de fumar era la combinación de tratamiento psicológico y farmacológico (Jimenez-Ruiz et al., 2015).

2.3. Implementación de las intervenciones de cesación tabáquica entre los/las profesionales de Enfermería

Existe un gran consenso acerca del deficiente grado de implementación de las intervenciones de cesación tabáquica por parte de los/las profesionales de Enfermería (Chandrakumar y Adams, 2015; Jimenez-Ruiz et al., 2015; Duaso et al., 2017; Martínez et al., 2017; Pianori et al., 2017). Concretamente, los estudios señalan que muchos/as enfermeros/as preguntan y, a veces, aconsejan a sus pacientes sobre su consumo de tabaco, pero pocos les asesoran y les ofrecen ayuda y seguimiento (Chandrakumar y Adams, 2015; Jimenez-Ruiz et al., 2015; Duaso et al., 2017; Martínez et al., 2017; Pianori et al., 2017). Entre las principales barreras para implementar las intervenciones de cesación tabáquica destacan el propio consumo de tabaco de los/las enfermeros/as, el déficit de conocimientos en tabaquismo, la falta de tiempo y recursos y dificultades organizacionales (Chandrakumar y Adams, 2015; Duaso et al., 2017; Jimenez-Ruiz et al., 2015; Katz et al., 2016; Martínez et al., 2017). Son numerosos los estudios que apuntan a una menor implementación de las intervenciones de cesación tabáquica entre profesionales de Enfermería fumadores/as, dado que tienden menos a aconsejar a los/las pacientes a dejar de fumar y de realizarles seguimiento (Chandrakumar y Adams, 2015; Duaso et al., 2017; Jimenez-Ruiz et al., 2015; Martínez et al., 2017). Cabe señalar que, a menudo, los/las enfermero/as fumadores/as reportan un mayor nivel de conocimientos y habilidades en las estrategias de cesación

tabáquica, hecho que ha sido explicado por algunos/as autores/as como una sobreestimación de su nivel de conocimientos y habilidades real (Chandrakumar y Adams, 2015; Mujika et al., 2017). Como factores relacionados con una mayor implementación de las intervenciones de cesación tabáquica entre Enfermería, se han descrito la voluntad de recibir formación en tabaquismo o haberla recibido, tener unas actitudes positivas con relación al rol de los/las profesionales sanitarios en la prevención y control del tabaquismo, tener experiencias previas positivas o una elevada autoconfianza para implementarlas y tener apoyo organizacional (Mak et al., 2018; Martínez et al., 2017).

2.4. Papel de la etapa universitaria en la consolidación del consumo de tabaco

Como se ha mencionado con anterioridad, la mayoría de las personas fumadoras desarrollan y consolidan el consumo de tabaco durante la juventud (15–24 años), con casi la mitad de ellos/las que lo hacen antes de los 18 y la otra mitad entre 18–24 años (Comisión Europea, 2021; U.S. Department of Health and Human Services, 2012). Para muchos, este período (15–24 años) también coincide con la realización de formación académica, tanto de la educación secundaria como de la universitaria. Estos hechos implican que gran parte de los/las enfermeros/as empiezan a fumar o consolidan el consumo de tabaco durante su formación universitaria.

Los estudios describen que la etapa universitaria da lugar a cambios personales y sociales, que se relacionan con la adquisición y/o consolidación de estilos y hábitos de vida que pueden determinar el estado de salud futuro. Por una parte, los/las jóvenes a menudo buscan nuevas experiencias, siendo más susceptibles a exponerse a conductas de alto riesgo, como es el consumo de tabaco, que puede llevarles de la experimentación al consumo regular (Berg et al., 2020; Cooke et al., 2016; Sutfin et al., 2022; Valencia-Arias et al., 2021). Por otro lado, los/las jóvenes son fácilmente influenciados por su entorno social, en especial por sus familiares, amigos o compañeros, incrementando su probabilidad de fumar cuando existen fumadores/as entre ellos. Este hecho también crea a menudo el consumo 'social', definido como aquél que solamente se realiza en los encuentros sociales (Buu et al., 2020). Además, entre los/las jóvenes, los/las estudiantes universitarios/as están más expuestos a la promoción, publicidad y venta de productos de tabaco que los demás, incrementando su probabilidad de usarlos (Hair et al., 2017).

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Según la Asociación Americana de la Salud de los Estudiantes Universitarios (American College Health Association, ACHA), el 40,3% de los/las estudiantes universitarios de EUA eran consumidores/as actuales de algún producto de tabaco y nicotina en 2022 (ACHA, 2022). En concreto, el 24,2% eran consumidores/as diarios/as, el 8,9% consumían semanalmente y el 7,2% lo hacían mensualmente. El producto más consumido entre los/las encuestados/as eran los e-cigarrillos, mientras que, en Europa, el producto más consumido entre estudiantes universitarios son los cigarrillos (Sreeramareddy et al., 2018; ACHA, 2022).

Estos hechos enfatizan la importancia de monitorizar el consumo de tabaco entre los/las estudiantes de Enfermería, ya que esta etapa determinará su futuro comportamiento en relación con el tabaquismo como profesionales.

3. El consumo de tabaco entre los/las estudiantes de Enfermería

Si bien los/las estudiantes de Enfermería desempeñan una función importante en la prevención y control del tabaquismo, su prevalencia y actitudes hacia el tabaquismo se asemejan a las del resto de estudiantes universitarios. No obstante, cuando se compara exclusivamente con estudiantes de ciencias de la salud, la prevalencia de consumo de tabaco entre estudiantes de Enfermería destaca por sus valores tan elevados.

3.1. Prevalencia del consumo de tabaco entre los/las estudiantes de Enfermería

Las investigaciones realizadas en estudiantes de Enfermería muestran que el consumo de tabaco también es común en este grupo, aunque, existe gran variabilidad en la prevalencia de consumo y su distribución dependiendo de la localización geográfica y temporal de cada estudio (Febrero Ortiz et al., 2017; Fernández et al., 2015; Fernández-García et al., 2020; Garrido-González et al., 2016; Granville et al., 2017; Martínez-Cóndor et al., 2016; Martínez et al., 2017; Ordás et al., 2015; Ordás et al., 2017; Sreeramareddy et al., 2018; Tavolacci et al., 2018).

En una revisión sistemática, en la que se incluían 214 estudios y 203 Encuestas Mundiales de Estudiantes de Profesiones de la Salud (EMEPS) (Global Health Professional Student Surveys [GHPSS] en inglés), la prevalencia global de consumo de tabaco entre los/las estudiantes universitarios de ciencias de la salud (Enfermería, Medicina, Fisioterapia, Odontología, Farmacia y otros) de los estados miembros de la OMS era del 19% (Granville et al., 2017).

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Concretamente, entre los/las estudiantes de Enfermería la proporción de fumadores/as oscilaba entre 0 y el 30%, dependiendo del país. En la misma línea, otro estudio sobre EMEPS encontró una prevalencia de consumo entre los/las estudiantes de Enfermería del 28,3% (Sreeramareddy et al., 2018). Siendo esta prevalencia la más baja en comparación con los/las estudiantes de Medicina (29,2%), Odontología (40,2%) y Farmacia (38,4%) (Sreeramareddy et al., 2018). No obstante, estos resultados se oponen a los mostrados en un estudio realizado en Francia, en el que la prevalencia de consumo de tabaco entre estudiantes de Enfermería era la más alta (33,2%), comparado con estudiantes de Medicina (23,2%), Fisioterapia (27,7%) y Farmacia (15,8%) (Tovalacci et al., 2018). Estas diferencias podrían estar causadas por el bajo tamaño muestral utilizado y los sesgos de selección de las encuestas realizadas.

En España, también existe esta variabilidad, ya que la prevalencia de consumo de tabaco entre estudiantes de Enfermería españoles descrita en los últimos diez años oscila entre el 14,4% y el 35,1% (Tabla 2) (Febrero Ortiz et al., 2017; Fernández et al., 2015; Fernández-García et al., 2020; Garrido-González et al., 2016; Martínez-Cóndor et al., 2016; Martínez et al., 2017; Ordás et al., 2015; Ordás et al., 2017). En la mayoría de los casos, la prevalencia en estudiantes de Enfermería (35,1%) es más alta que en estudiantes de otras disciplinas de la salud, como por ejemplo los/las estudiantes de Medicina y Fisioterapia, que contaban con el 17,5% y el 15,2% de fumadores/as, respectivamente (Martínez et al., 2017; Ordás et al., 2017). Además, comparando las prevalencias de consumo de las diferentes regiones de España, parece que la proporción de fumadores/as es mayor entre los/las estudiantes de Enfermería en Cataluña que entre los/las estudiantes de Galicia, Cantabria, Andalucía o Castilla y León (Fernández-García et al., 2020; Martínez et al., 2017).

Tabla 2: Prevalencia de consumo de tabaco entre los/las estudiantes universitarios de ciencias de salud en España. Fuente: elaboración propia

Autores	Prevalencia (%) de consumo de tabaco		
	Global	Enfermería	Otros
Alberdi-Erice et al., 2007	-	26,2%	-
Fernández et al., 2007	29,3% ^b	-	-
González-Torrente et al., 2008	-	26,1%	-
Martín et al., 2008	29,3%	-	-
Pericas et al., 2009	26,1% ^b	-	-
Fernández et al., 2010	-	28%	-
Barrientos-Trigo et al., 2014	-	21%	-
Ordás et al., 2015	18,2–29,3 ^a	-	-
Martínez-Cóndor et al., 2016	-	22,2%	-
Garrido-González et al., 2016	36,2%	-	-
Febrero Ortiz, 2017	-	14,4%	-
Martínez et al., 2017	23,4%	35,1%	17,5% ^b
Ordás et al., 2017	19,5%	23,6%	15,2% ^c
Fernández-García et al., 2020	-	18,3%	-

^aSolo estudiantes de Enfermería y Fisioterapia

^bEstudiantes de Medicina

^cEstudiantes de Fisioterapia

3.2. Conocimientos, creencias y actitudes hacia la prevención y control del tabaquismo entre los/las estudiantes de Enfermería

El bajo nivel de conocimientos y las creencias y actitudes positivas en tabaquismo presente en los/las profesionales de Enfermería también se ve reflejado en los/las estudiantes de Enfermería. En efecto, la mayoría de los estudios reportan un bajo nivel de conocimientos sobre los efectos nocivos del consumo de tabaco, la exposición al HAT y las estrategias de cesación tabáquica entre los/las estudiantes de Enfermería. Sin embargo, estos mantienen

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unas creencias y actitudes en relación con el rol de los/las profesionales sanitarios en la prevención y control del tabaquismo positivas (Fernández et al., 2015; Martínez et al., 2017; Ordás et al., 2015; Ordás et al., 2017; Ortega-Ceballos et al., 2018; Sreeramareddy et al., 2018; Walsh et al., 2012).

En un estudio español, se encontró un bajo nivel de conocimientos acerca de los efectos nocivos del tabaquismo entre los/las estudiantes de Enfermería y, menos de la mitad consideraron que tenían un nivel de conocimientos suficiente para ayudar a un paciente a dejar de fumar (Fernández et al., 2015). Ordás et al. también encontraron un bajo nivel de conocimientos acerca de los efectos nocivos del tabaquismo entre estudiantes de Enfermería españoles/as, pero, además, detectaron que el porcentaje de desconocimiento aumentó entre los años de medición (2003, 2013 y 2014) (Ordás et al., 2015). En concreto, el nivel de desconocimiento aumentó significativamente acerca de la relación entre fumar y el desarrollo de cáncer de vejiga, enfisema pulmonar, enfermedad arterial coronaria y leucoplasia bucal, así como de la relación entre la exposición al HAT y las enfermedades cardiovasculares, asma infantil y bajo peso en recién nacidos (Ordás et al., 2015; Ordás et al., 2017). Por el contrario, Ortega-Ceballos et al. reportaron un alto nivel de conocimientos sobre los efectos nocivos del consumo de tabaco entre estudiantes de Enfermería de México, (Ortega-Ceballos et al., 2018). Cabe señalar que, en este estudio, los/las estudiantes de Enfermería cuentan con una prevalencia de consumo de tabaco muy elevada (42,4%). La presencia de mayor número de fumadores/as podría haber contribuido al mayor nivel de conocimientos encontrado, como ocurre en el caso de los/las profesionales de Enfermería (Chandrakumar y Adams, 2015; Walsh et al., 2012).

Los datos sobre las creencias y actitudes en tabaquismo entre estudiantes de Enfermería indican que existe un alto acuerdo sobre el rol que desempeñan los/las profesionales sanitarios en la prevención y control del tabaquismo (Fernández et al., 2015; Martínez et al., 2017; Ordás et al., 2015; Ordás et al., 2017; Sreeramareddy et al., 2018). En esta ocasión, los/las autores/as no vieron cambios significativos en la evolución global de estos porcentajes entre 2003 y 2013 (Ordás et al., 2015). Sin embargo, el grado de acuerdo con las políticas de prevención y control del tabaquismo en las universidades y su confianza para ayudar a los/las pacientes a dejar de fumar, en ocasiones, eran bajos (Martínez et al., 2017; Ordás et al., 2015; Sreeramareddy et al., 2018). Excepcionalmente, Walsh et al. encontraron un bajo acuerdo sobre el rol que desempeñan los/las profesionales sanitarios en la

prevención y control del tabaquismo en estudiantes de Enfermería de Australia (Walsh et al., 2012).

Las creencias y actitudes hacia el consumo de tabaco están influenciadas por diversos factores, entre los que se destacan la edad, las normas sociales, la presencia de fumadores/as en el otro familiar y social, el propio consumo, el nivel de percepción de adicción y la exposición al HAT y publicidad de tabaco (Chandrakumar y Adams, 2015; Martínez et al., 2017; U.S. Department of Health and Human Services, 2012).

3.3. Formación en tabaquismo entre los/las estudiantes de Enfermería

Los principales conocimientos de los/las profesionales de Enfermería provienen de su educación universitaria, y, por tanto, la formación teórica y práctica en tabaquismo que adquieren durante sus estudios determina en gran medida su futuro nivel de conocimientos en este ámbito. En este sentido, los resultados sobre formación recibida en tabaquismo entre los/las estudiantes de Enfermería van en línea con su bajo nivel de conocimientos. A pesar de que los/las profesionales y estudiantes de Enfermería reciben formación sobre los riesgos del consumo de tabaco en Enfermería, existe un claro consenso en que estos no reciben la suficiente formación y entrenamiento en las estrategias efectivas para ayudar a los/las pacientes a dejar de fumar durante su educación universitaria (Lepage et al., 2015; Ordás et al., 2015; Ye et al., 2018).

En los resultados publicados de la EMEPS, por ejemplo, solo el 33% o menos de los/las estudiantes de ciencias de la salud de los estados miembros de la OMS reportó haber recibido formación acerca de las estrategias de cesación tabáquica (Sreeramareddy et al., 2018). En un estudio español, Ordás et al. encontraron que, a pesar de reportar altos porcentajes de recepción de formación sobre los riesgos del tabaquismo, la mayoría de los/las estudiantes de Enfermería incluidos referían no tener los conocimientos ni la autoconfianza suficientes para ayudar a los/las pacientes a dejar de fumar (Ordás et al., 2015). Además, vieron que estos porcentajes no se modificaron entre los diez años de investigación (2003–2013), lo que sugiere que no hubo cambios positivos en la calidad y ni la cantidad de la formación recibida en tabaquismo entre este grupo. Estos datos concuerdan con los de una revisión sistemática que constata la escasa formación y preparación recibidas en tabaquismo entre los/las estudiantes de ciencias de la salud (Ye et al., 2018). Este estudio refleja que la formación en tabaquismo suele ser únicamente teórica,

de una duración media de una hora y, generalmente, está enfocada en los datos epidemiológicos, sin abarcar las estrategias de cesación tabáquica. También, destaca la falta de consistencia y estandarización de la formación en tabaquismo (Ye et al., 2018).

Lo cierto es que la mayoría de los/las encuestados/as, tanto estudiantes como profesionales de Enfermería, consideran que deben recibir más formación y preparación acerca de las estrategias y métodos para dejar de fumar (Chandrakumar y Adams, 2015; Katz et al., 2016; Sreeramareddy et al., 2018).

4. Los estudios longitudinales sobre tabaquismo en Enfermería

Como se ha referenciado con anterioridad, los estudios de prevalencia han demostrado que, de forma general, la prevalencia de consumo de tabaco y los conocimientos, creencias, actitudes, y formación en tabaquismo entre los/las profesionales y estudiantes de Enfermería no responden a su rol tan clave en la prevención y control del tabaquismo. Es más, han mostrado también que estos factores interfieren significativamente entre sí, ya que sus actitudes hacia el tabaquismo están relacionadas con su propio consumo de tabaco y el de su entorno, y viceversa, y su nivel de conocimientos en tabaquismo con la formación recibida durante el grado de Enfermería. Un claro ejemplo de ello, ya citado también, es la menor implementación de las intervenciones de cesación tabáquica entre enfermeros/as fumadores/as que los/las no fumadores/as (Chandrakumar y Adams, 2015; Duaso et al., 2017). Estos resultados dejan cabida a la realización de estudios longitudinales en estudiantes y profesionales de Enfermería para indagar extendida y profundamente en estos parámetros con la finalidad de mejorarlos.

4.1. Importancia de los estudios longitudinales en tabaquismo

En la investigación para el control del tabaquismo, los estudios de cohortes proporcionan una amplia información que permite determinar los cambios que se han producido en la población de estudio y conocer los factores asociados a dichos cambios (Hernández-Avila, et al., 2000; Samet y Muñoz, 1998). Ejemplos claros de estudios de cohortes bien conocidos en los que el consumo de tabaco tuvo una importancia relevante son el "British Doctors' Study" (Doll & Hill, 1954), el "Framingham Heart Study" (Dawber et al., 1957) y el "Nurses

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Health Study" (NHS) (Belanger et al., 1978; Colditz, 1995). Partiendo de estos estudios, que ofrecen una dimensión temporal, ha sido posible evaluar la aparición de enfermedades y establecer la asociación entre la exposición al tabaquismo, entre otros factores de riesgo para la salud, y las enfermedades (Colditz et al., 2016; Doll & Hill, 1954; Dawber et al., 1957; Kawachi et al., 1993; Rimm et al., 1993; Willett et al., 1981; Willett et al., 1983; Willett et al., 1987). Además, estos primeros estudios de cohortes han proporcionado importantes contribuciones en el diseño y la metodología de este tipo particular de estudio epidemiológico, permitiendo la replicación de investigaciones similares en diferentes regiones y grupos, entre los que se incluyen los/las profesionales de Enfermería (Colditz, 2016; García et al., 2003; Hansen et al., 2016; Hu et al., 2016; Jernigan et al., 2018; Snowdon, 1997; Wolf et al., 1994).

En este sentido, la realización de estudios longitudinales sobre tabaquismo entre los/las estudiantes y profesionales de Enfermería puede ayudar a determinar la evolución en el tiempo de la prevalencia de consumo de tabaco y los conocimientos, creencias, actitudes, y formación en tabaquismo, así como los factores relacionados con ello, lo que puede contribuir al diseño de estrategias adecuadas para fomentar el desempeño de su rol en la prevención y control del tabaquismo.

4.2. Estudios longitudinales sobre tabaquismo en profesionales de Enfermería

El NHS, iniciado en 1976 en los EUA, fue el primer gran estudio de cohortes que tomó como población base a enfermeras (Bao et al., 2016; Belanger et al., 1978; Colditz, 1995; Colditz, 2016). Hasta la actualidad, el NHS es el estudio más grande realizado en mujeres, contando con más de 280.000 participantes. En la primera fase, denominada NHS-I, Speizer et al. enviaron por correo ordinario el cuestionario basal del estudio a las 170.927 enfermeras que cumplían los criterios de inclusión, de las cuales un total de 121.700 enfermeras devolvieron el cuestionario cumplimentado (el 71,2% de las invitadas). Algunos criterios de inclusión eran estar casada, tener entre 30 y 55 años y residir en uno de los 11 estados de EUA con mayor número de colegiadas (Nueva York, California, Pensilvania, Ohio, Massachusetts, Nueva Jersey, Michigan, Texas, Florida, Connecticut y Maryland). Los cuestionarios incluían datos sobre el uso de anticonceptivos orales, estilos de vida e información sanitaria, actividad física, frecuencia de uso de los alimentos, factores de riesgo relacionados con el comportamiento y el estilo de vida (entre las que estaba el consumo de tabaco), etc. Los

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cuestionarios de seguimiento se han estado enviando de forma bienal, hasta la actualidad (Belanger et al., 1978; Bao et al., 2016; Colditz, 2016).

Posteriormente, en 1989, Willett et al. enviaron el cuestionario a otras 116.430 enfermeras, creando el NHS-II. En esta oleada, las enfermeras cumplían otros criterios de inclusión, entre las que destaca tener de 25 a 42 años y residir en uno de los 14 estados de EUA (California, Connecticut, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Missouri, Nueva York, Carolina del Norte, Ohio, Pensilvania, Carolina del Sur y Texas). También incluyeron en el cuestionario nuevas preguntas acerca del consumo de alcohol, perfil de grasa corporal, por ejemplo, y ofrecieron la posibilidad de responder mediante cuestionario en línea a partir del 2001 (Bao et al., 2016; Colditz, 2016).

Por último, en 2010, empezó el NHS-III, dirigido por Jorge Chavarro. En esta ocasión, extendieron los criterios de inclusión a enfermeras de 19 a 49 años de todos los estados de EUA y también de Canadá y los cuestionarios a cumplimentar eran en línea. También redujeron el tiempo de seguimiento a 6 meses. Desde su comienzo a la actualidad se han llegado a reclutar 40.000 enfermeras mujeres, aunque, a partir del 2015, empezaron a reclutar a enfermeros hombres también (Bao et al., 2016; Colditz, 2016).

El NHS ha dado a conocer la evolución del consumo de tabaco entre el colectivo enfermero y, sobre todo, ha generado hallazgos significativos acerca de las consecuencias y los factores relacionados con el consumo de tabaco (Colditz et al., 2016; Sarna et al., 2008). De este modo, gracias al NHS se han demostrado las asociaciones entre el tabaquismo y la diabetes tipo II, las enfermedades cardiovasculares, el cáncer colorrectal y de páncreas, la psoriasis, la esclerosis múltiple y las enfermedades oculares. Además, el diseño y metodología de este estudio han sido ampliamente usados como referencia para la ejecución de investigaciones similares entre enfermeras de otros países e incluso entre otros colectivos (Barreto et al., 2016; Kim et al., 2017; Lv et al., 2022; Rimm et al., 1990; Turner et al., 2009).

4.3. Estudios longitudinales sobre tabaquismo en estudiantes de Enfermería

En estudiantes de Enfermería, los estudios longitudinales destacan por su escasez, más especialmente los relacionados con el tabaquismo. Sin embargo, son numerosos los estudios de cohortes realizados entre estudiantes universitarios, tanto a nivel mundial como nacional.

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En España, el proyecto SUN (Seguimiento Universidad de Navarra) fue el primer estudio de cohortes en estudiantes universitarios, el cual exploró la evolución del consumo de tabaco entre este colectivo, además de otras variables (Gutiérrez et al., 2009). Este proyecto, iniciado en 1999, cuenta con una cohorte dinámica de más de 22.500 participantes. En 2009, los/las investigadores/as del proyecto publicaron sus primeros resultados sobre los cambios en el estado de consumo de tabaco en esta población, sin diferenciar entre el tipo de estudios llevados a cabo por los/las participantes (Gutiérrez et al., 2009). Los/las autores/as describieron diversos cambios en el estado de consumo de cigarrillos entre los/las estudiantes universitarios seguidos/as entre el año 2000 y el 2006. Entre los/las 5.106 participantes, el 4,0% iniciaron el consumo de tabaco, el 8,5% dejaron de fumar, el 16,0% continuaron como fumadores/as o recayeron, el 19,5% continuaron como exfumadores/as y el 51,7% continuaron como nunca fumadores/as. También detectaron una relación proporcional entre el consumo de tabaco y el tener una mala calidad de vida.

En 2011, se inició otro estudio de cohortes similar para indagar sobre el consumo de drogas y otras adicciones en estudiantes universitarios (proyecto uniHCos: Universitarios, Hábitos de Vida, Cohorte de Seguimiento). Además de expandir el espectro de universidades incluidas, este proyecto se centra exclusivamente en el consumo de drogas, entre ellas el tabaco, y otras adicciones, con el objetivo de aportar datos relevantes sobre la influencia de la etapa universitaria en el establecimiento o mantenimiento de los hábitos de vida, así como su relación con el estado de salud futuro (Fernández et al., 2013). No obstante, este proyecto no ha reportado todavía resultados sobre los cambios en el consumo de tabaco de sus participantes.

El único estudio longitudinal sobre tabaquismo entre estudiantes de Enfermería encontrado remonta a Japón, dónde Ohida et al. siguieron a una cohorte de estudiantes de Enfermería para investigar los cambios en el consumo de tabaco y sus predictores (Ohida et al., 2001). En este estudio vieron que, de los/las 224 estudiantes de Enfermería de las escuelas de formación profesional, el 13% iniciaron el consumo y el 3% dejaron de fumar, mientras que, de los/las 222 estudiantes de Enfermería universitarios, el 5% iniciaron el consumo y el 3% dejaron de fumar durante el año de seguimiento. Además del incremento global en la prevalencia de consumo de tabaco, los/las investigadores/as detectaron una mayor probabilidad de iniciar el consumo entre los/las estudiantes que tenían amigos/as fumadores/as y aquellos/as que vivían solos/as.

Por tanto, a pesar de la existencia de estudios de cohortes sobre el consumo de tabaco y otros aspectos relacionados entre estudiantes universitarios en Europa, en la actualidad no se han descrito la evolución individual del consumo de tabaco, las actitudes y formación sobre tabaquismo entre los/las estudiantes de Enfermería durante su formación universitaria y en los años posteriores ni los factores asociados a estos cambios.

5. Justificación e implicaciones para la salud pública

En la actualidad, la prevención y erradicación del consumo de tabaco supone uno de los mayores retos de la salud pública por ser la principal causa evitable de morbimortalidad en las personas. Por ello, el CMCT de la OMS establece diversas estrategias para frenar esta pandemia, entre las que destacan los programas de educación y promoción de la salud y las intervenciones de cesación tabáquica llevados a cabo por los/las profesionales de la salud. En su código de buenas prácticas en control del tabaquismo, incita también a los/las profesionales sanitarios a corresponder con su rol ejemplar y no fumar.

En este contexto, los/las profesionales de Enfermería tienen un rol fundamental en el manejo de la dependencia al tabaco por ser el colectivo sanitario más numeroso, más cercano al paciente y con mayor implicación en la prevención y tratamiento del tabaquismo. No obstante, su elevada prevalencia de consumo de tabaco distorsiona su figura ejemplar e interfiere negativamente en su práctica profesional enfermera. Del mismo modo, los/las estudiantes de Enfermería, como futuros profesionales enfermeros/as, tienen relevancia en el control del tabaquismo. Este hecho ha llevado a la realización de diversas investigaciones en diversas regiones que han plasmado el estado de la cuestión en este colectivo, sin embargo, dejando diversas lagunas sin cubrir como es el caso de la monitorización del consumo de tabaco de los/las estudiantes de Enfermería en Cataluña, la ejecución de estudios multicéntricos y longitudinales y, por último, la exploración simultánea del uso de diversos productos de tabaco. Por este motivo, durante el curso 2015-2016, se llevó a cabo el Estudio del Consumo de Tabaco en Estudiantes del grado universitario de Enfermería en Cataluña (ECTEC) para analizar la prevalencia de consumo de tabaco, nivel de conocimientos, actitudes y formación recibida en tabaquismo y cumplimiento de los espacios sin humo en este grupo. Este estudio proporcionó una descripción transversal y multicéntrica de la problemática en estudiantes de Enfermería en Cataluña, incluyendo el consumo de diferentes productos de tabaco. Sin embargo, para comprender la evolución

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en el tiempo de estos parámetros y los factores asociados a estos cambios, se requería la realización de un seguimiento de esta cohorte de estudiantes de Enfermería. De ahí surge el presente estudio de cohortes prospectivo (ECTEC-S: Estudio de Seguimiento del Consumo de Tabaco en Estudiantes del grado universitario de Enfermería en Cataluña). En esencia, este estudio pretende responder a la siguiente pregunta de investigación: ¿cómo evolucionarán los patrones de consumo de productos de tabaco, la formación recibida y las actitudes hacia el tabaquismo en la cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019)?

HIPÓTESIS

HIPÓTESIS

Las principales hipótesis (H) de la tesis son:

- **H1:** Al menos, la mitad de los/las estudiantes de Enfermería del estudio basal participará en el seguimiento (2018–2019); los/las jóvenes (≤ 24 años) y no fumadores/as en el basal tendrán mayor probabilidad de hacerlo, en comparación con los/las ≥ 25 años y fumadores/as.
- **H2:** Los/las estudiantes de Enfermería seguidos/as experimentarán diversos cambios en relación con su consumo de tabaco entre el estudio basal y el seguimiento, especialmente, los/las jóvenes (≤ 24 años) y los/las fumadores/as que estén en los últimos cursos del Grado de Enfermería (3º y 4º) y que tengan una baja dependencia a la nicotina en el basal, comparado con los/las ≥ 25 años y los/las fumadores/as que estén en los primeros cursos (1º y 2º) y que tengan una alta dependencia.
- **H3:** Los/las estudiantes de Enfermería seguidos/as mejorarán sus actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en el seguimiento respecto al estudio basal, especialmente aquellos/as participantes que no sean fumadores/as, en comparación con los/las fumadores/as.
- **H4:** Los/las estudiantes de Enfermería seguidos/as incrementarán su formación recibida durante el grado de Enfermería sobre tabaquismo en el seguimiento respecto al estudio basal, especialmente aquellos/as participantes que estén en los primeros cursos de Grado de Enfermería (1º y 2º), comparado con los/las que estén en los últimos cursos (3º y 4º).

OBJETIVOS

OBJETIVOS

1. Objetivos generales

Los principales objetivos (O) de la tesis son:

- **O1:** Examinar el perfil de los/las estudiantes de Enfermería seguidos/as entre los cursos académicos 2015–2016 y 2018–2019;
- **O2:** Analizar los cambios en el consumo de productos de tabaco, e-cigarrillos y cannabis en una cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019);
- **O3:** Explorar los cambios en las actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en una cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019); y, por último,
- **O4:** Evaluar los cambios en la formación recibida durante el grado de Enfermería sobre tabaquismo en una cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019).

2. Objetivos específicos

Los objetivos específicos de cada uno de los generales son:

O1: Examinar el perfil de los/las estudiantes de Enfermería seguidos/as entre los cursos académicos 2015–2016 y 2018–2019

- a. Describir los determinantes de seguimiento en el estudio ECTEC-S de acuerdo con las características individuales y contextuales de los/las participantes.

O2: Analizar los cambios en el consumo de productos de tabaco, e-cigarrillos y cannabis en una cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019)

OBJETIVOS

- a. Mostrar los determinantes del consumo de productos de tabaco, e-cigarrillos y cannabis en una cohorte de estudiantes de Enfermería en el estudio basal (2015–2016) y en el seguimiento (2018–2019);
- b. Reportar los predictores de cambio en el estado de consumo de tabaco en la cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019); y, por último,
- c. Investigar los predictores de cambio en el patrón de consumo de tabaco entre los/las fumadores/as de la cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019).

O3: Explorar los cambios en las actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en una cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019)

- a. Examinar los predictores de adquirir actitudes positivas hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en la cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019).

O4: Evaluar los cambios en la formación recibida durante el grado de Enfermería sobre tabaquismo en una cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019)

- a. Describir los predictores de recibir más formación durante el grado de Enfermería sobre tabaquismo en la cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019).

MATERIAL Y MÉTODOS

MATERIAL Y MÉTODOS

1. Diseño general del estudio

Estudio de cohortes prospectivo realizado entre los cursos 2015–2016 y 2018–2019 en estudiantes de Enfermería de Cataluña.

2. Población de estudio

La población diana de este estudio fueron todos/as los/las participantes del estudio basal (ECTEC); un total de 4.381 estudiantes de Enfermería. Por tanto, uno de los criterios de inclusión establecido para el seguimiento fue que hubiesen cumplimentado la encuesta inicial (Anexo 1). El segundo fue que hubiesen proporcionado su consentimiento y su correo electrónico para ser contactados en el seguimiento (Anexo 2). La muestra final estudiada se deriva de estas condiciones.

3. Recogida de datos

En el consentimiento informado del estudio basal también se reflejaba la posibilidad de participar en futuros estudios de seguimiento, los/las estudiantes de Enfermería que lo aceptaban, podían cumplimentar el correo electrónico para ser contactados en el momento del seguimiento (Anexo 2). Se decidió utilizar este canal de comunicación con los/las potenciales participantes, dado que es una herramienta comúnmente usada entre los/las adultos/as jóvenes, que es el perfil de la mayoría de los/las estudiantes de Enfermería (Byaruhanga et al., 2019). Tras el estudio basal, se envió un mensaje de agradecimiento a los/las participantes mediante los correos electrónicos proporcionados por ellos/as y se les comunicó las principales conclusiones de la encuesta. Este envío también sirvió para comprobar la operatividad de dichos correos electrónicos de cara al seguimiento.

Antes de proceder con el envío de la encuesta, se realizó una campaña de difusión masiva del estudio para potenciar la participación. Solicitemos la colaboración de todas las escuelas

de Enfermería catalanas y de los cuatro colegios de Enfermería de Cataluña mediante el envío de dos correos electrónicos de forma separada, que daban a conocer el propósito del estudio de seguimiento y su realización (Anexo 3). Un correo electrónico fue enviado por los decanos de las escuelas de Enfermería a los/las estudiantes de tercer y cuarto año con la intención de llegar a aquellos/as participantes que en el estudio basal eran estudiantes de primer y segundo año. El otro correo electrónico fue enviado por los Colegios Oficiales de Enfermería de Cataluña, dirigido a los/las enfermeros/as matriculados/as entre el 2016 y el 2018 con la intención de llegar a aquellos/las participantes que en el estudio basal estaban en su tercer y cuarto año de estudio en las escuelas de Enfermería. En ambos correos electrónicos, se informaba a las personas de que iban a ser contactados por el equipo de investigación del estudio ECTEC-S para solicitar su participación en la encuesta de seguimiento. Además, se utilizaron las redes sociales, en concreto la plataforma Twitter, y el blog de la Unidad de Control del Tabaco (UCT) para informar a la comunidad enfermera sobre el estudio de seguimiento.

Se contactó directamente con los/las participantes mediante un correo electrónico personalizado, para invitarles/as a participar en el seguimiento. En el correo enviado se les recordó y agradeció su participación en el estudio basal y se solicitó de nuevo su colaboración en el seguimiento (Anexo 4). Para tal efecto, se adjuntaba la hoja informativa del estudio, disponible en catalán y en castellano, mediante la cual podían acceder a la encuesta (Anexo 5).

La encuesta permaneció abierta durante 6 meses; desde julio del 2018 hasta diciembre del mismo año. A lo largo de este periodo, se enviaron seis correos electrónicos con un recordatorio a quienes aún no habían completado el cuestionario en línea, que incluían diferentes formatos de información, desde texto hasta vídeo, y una infografía que destacaba la importancia de su participación (Anexo 6). Los tres primeros recordatorios se enviaron cada 15 días, los dos siguientes en octubre y el último en noviembre. Todo este proceso se realizó a través de la plataforma LimeSurvey: una herramienta que ayudó a la gestión y envío de los cuestionarios.

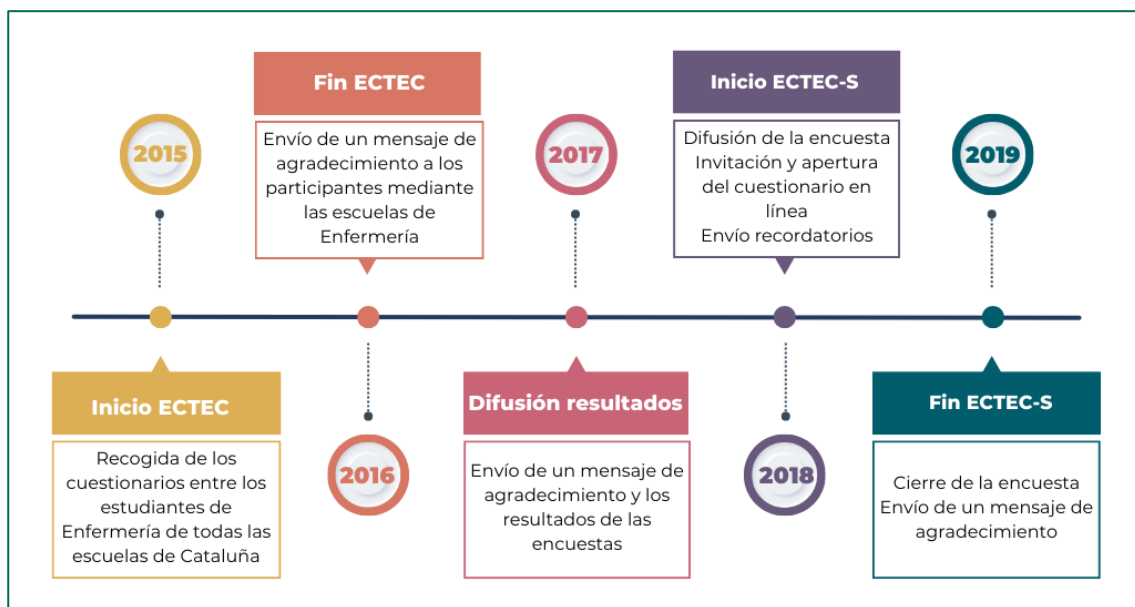
Para fomentar la participación, además del uso de canales de comunicación adaptados a las características de los/las potenciales participantes (correo electrónico, redes sociales y otros medios en línea), la ampliación de la difusión del estudio a través de entidades oficiales y el uso de recordatorios, se utilizaron incentivos. Concretamente, se sorteó un vale de 300 €

para usar en una tienda de ocio cultural, entre quienes colaboren en el seguimiento voluntariamente.

Una vez completada la encuesta, se envió un mensaje de agradecimiento a cada participante para promover el interés en el estudio y facilitar la participación en futuros seguimientos. Además, para garantizar la participación en el futuro, se solicitó información de contacto actualizada, incluyendo el número de teléfono móvil de cada participante y su dirección de correo electrónico actual.

Seguidamente, se realiza una esquematización de las fases del estudio ECTEC y del ECTEC-S (Figura 5).

Figura 5: Diagrama de las fases del estudio ECTEC y del ECTEC-S. Fuente: elaboración propia



4. Instrumento

En el estudio basal, los/las participantes cumplimentaron un cuestionario en papel en el aula durante las clases de Enfermería, que evaluaba las cinco dimensiones que abarca el estudio (consumo de tabaco, conocimientos, actitudes y formación en tabaquismo y el cumplimiento de las políticas de espacios sin humo) (Anexo 1). El cuestionario fue diseñado por el equipo ECTEC, liderado por la investigadora principal del estudio (la Dra. Cristina Martínez Martínez), basándose en el cuestionario de la GHPSS (Guillén et al., 2003).

Para el estudio de seguimiento, se utilizó el cuestionario basal para elaborar una versión adaptada a la situación de los/las posibles participantes en aquel momento y, también, al

método de recogida de datos, que en este caso fue en línea (Anexo 5). De este modo, se incluyeron nuevas preguntas sobre si habían finalizado el grado de Enfermería, la ocupación que desarrollaban, el núcleo de convivencia, la renta anual y el estado civil como información sociodemográfica, el consumo de tabaco sin combustión (IQOS), que en el momento del estudio basal no había emergido aún, el cumplimiento de las políticas de espacios sin humo en el entorno laboral y la implementación de la intervención mínima (5As) para ayudar a los/las pacientes a dejar de fumar. En total, el cuestionario consta de 39 preguntas; de las cuales 8 corresponden a datos sociodemográficos y académicos/laborales y 7 al estado de consumo de productos de tabaco, e-cigarrillos y cannabis dirigidas a todos/as los/las participantes. Si habían reportado ser consumidores/as actuales de algún producto de tabaco, aparecían 8 preguntas sobre el patrón de consumo, en cambio, si marcaron que en la actualidad no fumaban, pero sí lo habían hecho en el pasado, se les dirigía a 3 preguntas sobre cuándo, por qué y cómo dejaron de fumar. En la última sección, el cuestionario cuenta con 10 preguntas sobre los conocimientos, actitudes y formación recibida sobre tabaquismo, el cumplimiento de las políticas de espacios sin humo y la implementación de la intervención mínima, a la que los/las nunca fumadores/as accedían directamente y el resto, después de contestar a las preguntas especificadas anteriormente. A esta sección, también se le sumaban 3 preguntas sobre datos sociodemográficos más personales, dirigidas a todos/as los/las participantes.

Después de diseñar el cuestionario, se volcó en la plataforma LimeSurvey, que se utilizó para programar los envíos y monitorear la participación. Para comprobar el correcto funcionamiento, la fiabilidad y la recuperación de los datos del cuestionario informatizado, se realizó una prueba piloto con 20 investigadores colaboradores de diferentes áreas y, posteriormente, con 50 de los/las participantes seleccionados al azar del total de posibles candidatos.

5. Variables

Principalmente, las variables dependientes estaban relacionadas con el consumo de tabaco, las actitudes y formación recibida sobre tabaquismo de los/las participantes. De este modo, las principales variables dependientes fueron:

- **Participación en el seguimiento.** Se consideró como participación el hecho de cumplimentar el cuestionario en línea del seguimiento por parte de las potenciales

personas, diferenciando entre los/las que lo hicieron ("Sí") y los/las que no lo hicieron ("No").

- **Transiciones en el estado y patrón de consumo de productos de tabaco.** Tanto en el estudio basal como en el seguimiento, se preguntó sobre el consumo actual y pasado de diferentes productos de tabaco, entre los que se incluyen los cigarrillos tradicionales o manufacturados, cigarrillos hechos con tabaco de liar, puros o purito o pipa y pipa de agua (también conocida como shisha, cachimba o pipa turca), e-cigarrillos, tabaco sin combustión y cannabis. Se definió como fumadores/as a los/las participantes que eran consumidores/as de productos de tabaco combustible (cigarrillos tradicionales o manufacturados y cigarrillos hechos con tabaco de liar). Se clasificó a todos/as los/las participantes en tres estados de consumo de tabaco, de acuerdo con la definición del *Centers for Disease Control and Prevention (CDC)* y *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (CDC, 2017)*:

- **Fumador/a actual:** persona que ha fumado más de 100 cigarrillos en su vida y que fuma en el momento de la encuesta. También se han incluido a aquellas personas que fumaban regularmente, pero han cesado el consumo hace menos de 6 meses. Según la frecuencia de consumo, se ha diferenciado entre fumador/a diario/a (una persona que fuma al menos un cigarrillo al día) y fumador/a ocasional (una persona que fuma regularmente pero no todos los días, independientemente de la cantidad o frecuencia).
- **Exfumador/a:** persona que ha fumado al menos 100 cigarrillos en su vida, pero que ha permanecido abstinentes en los últimos 6 meses o más.
- **Nunca fumador/a:** persona que no ha fumado más de 100 cigarrillos en su vida y no ha fumado en los últimos 30 días.

Entre los/las fumadores/as actuales, caracterizamos el patrón de consumo de tabaco según la edad de inicio de consumo (<17 o ≥17 años); el número de CPD (<10, 10-19 o ≥20); la dependencia a la nicotina (baja 0-2, media 3-4, alta 5-6) (Chabrol et al., 2005); los intentos de dejar de fumar en el último año (sí o no), el número de intentos de dejar de fumar (1 o ≥2) y la intención de dejar o reducir el consumo (sí o no).

A base de los cambios en el estado de consumo de tabaco de cada participante entre el estudio basal y el seguimiento, se establecieron diferentes transiciones (Figura 6): (i) pasar de ser fumador/a actual en el estudio basal a exfumador/a en el seguimiento, clasificados como *exfumadores/as recientes*; o continuar como fumador;

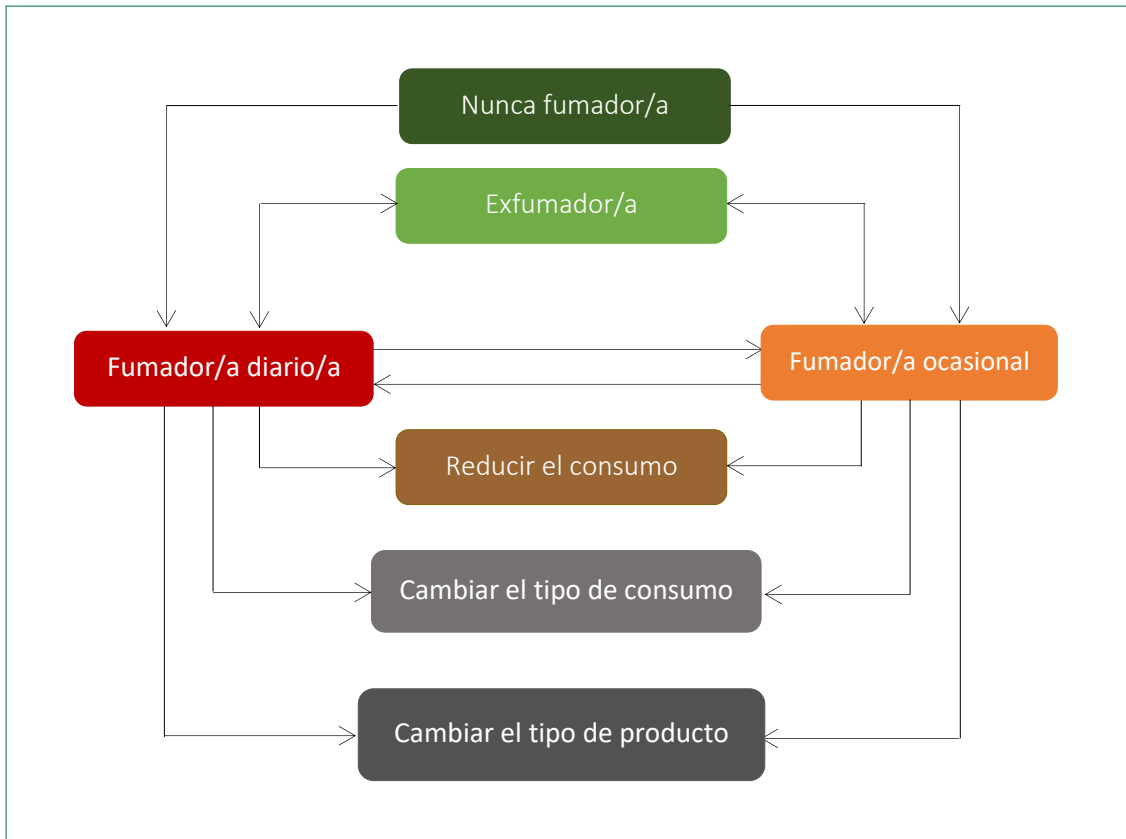
MATERIAL Y MÉTODOS

- (ii) pasar de ser exfumador/a en el estudio a fumador/a actual en el seguimiento, clasificados como *fumadores/as que recayeron*; o continuar como exfumador/a;
- (iii) pasar de ser nunca fumador/a en el estudio basal a fumador/a actual en el seguimiento, clasificados como *nuevos/as fumadores/as*, o continuar como nunca fumador/a.

A base de los cambios en el patrón de consumo de tabaco, se establecieron las siguientes transiciones;

- (iv) pasar de ser fumador/a diario/a en el estudio basal a fumador/a ocasional en el seguimiento o continuar como fumador/a diario/a;
- (v) pasar de ser fumador/a ocasional en el estudio basal a fumador/a diario/a o continuar como fumador/a ocasional;
- (vi) pasar de ser fumador/a de solo cigarrillos (tradicionales o manufacturados y/o cigarrillos hechos con tabaco de liar) a policonsumidor/a (persona que consume cigarrillos tradicionales o manufacturados y/o cigarrillos hechos con tabaco de liar en combinación con uno o más de los productos explorados) o continuar como fumador/a de solo cigarrillos;
- (vii) pasar de ser policonsumidor/a a fumador/a exclusivamente de cigarrillos o continuar como policonsumidor/a; y, finalmente,
- (viii) reducir el número de cigarrillos consumidos diariamente (≥ 5) o continuar consumiendo la misma cantidad de cigarrillos, reducir menos de 5 CPD o incrementar el número de cigarrillos consumidos.

Figura 6: Transiciones en el consumo de productos de tabaco, e-cigarrillos y cannabis entre la cohorte de estudiantes de Enfermería entre el estudio basal (2015–2016) y el seguimiento (2018–2019). Fuente: elaboración propia



- **Transiciones en las actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo.** Tanto en el estudio basal como en el seguimiento, se evaluó el grado de prioridad que conceden al tabaquismo como problema de salud, la actitud hacia las restricciones al consumo de tabaco en la universidad y en los centros sanitarios, y la percepción del papel modélico de los/las enfermeros/as. Estas variables se midieron con una escala Likert de 5 puntos (totalmente de acuerdo, de acuerdo, ni de acuerdo ni en desacuerdo, en desacuerdo, totalmente en desacuerdo). Para facilitar el análisis, se juntaron las categorías totalmente de acuerdo y de acuerdo como de acuerdo y el resto como en desacuerdo.

Las afirmaciones planteadas fueron las siguientes:

- Los/las profesionales de la salud deberían dar ejemplo y no fumar.
- Los/las estudiantes de Enfermería deberían dar ejemplo y no fumar.

- Los/las profesionales de la salud deberían recibir formación sobre cómo ayudar a los/las pacientes a dejar de fumar.
- Los/las profesionales de la salud deberían preguntar y registrar rutinariamente en la historia clínica el consumo de tabaco de sus pacientes.
- Los/las profesionales de la salud deberían aconsejar rutinariamente a sus pacientes fumadores/as que dejen de fumar.
- Las posibilidades de que un fumador/a deje de fumar aumentan cuando un/a profesional de la salud se lo aconseja.
- Los /las profesionales de la salud que fuman tienden a aconsejar menos a sus pacientes que dejen de fumar.
- El sistema público de salud debería financiar tratamientos eficaces para dejar de fumar.

A base de los cambios en las actitudes expresadas por cada participante entre el estudio basal y el seguimiento, se estableció la transición de aquellos/as que han reportado estar en desacuerdo en el estudio basal y han pasado a estar de acuerdo en el seguimiento con respecto a la misma afirmación, como *adquirir actitudes positivas*. Los/las participantes que continuaron expresando estar en desacuerdo se definieron como *continuar con actitudes negativas*.

- **Transiciones en la formación recibida durante el grado de Enfermería sobre tabaquismo.** Tanto en el estudio basal como en el seguimiento, se preguntó a los/las participantes si habían recibido formación sobre la atención al/la paciente fumador/a, y si conocen cómo ofrecer ayuda para dejar de fumar (con respuesta sí o no). Las preguntas/afirmaciones planteadas fueron las siguientes:
 - ¿Te han hablado en alguna de las clases, seminarios o prácticas sobre los riesgos de fumar?
 - ¿Te han explicado la diferencia entre un fumador/a activo/a y pasivo/a?
 - ¿Se ha discutido en alguna de las clases, seminarios o prácticas los motivos por los cuales la gente fuma?
 - ¿Te han enseñado que es importante registrar el uso del tabaco en la historia clínica del/la paciente?
 - ¿Has recibido formación en técnicas para ayudar a los/las pacientes a dejar de fumar?

- ¿Te enseñaron que es importante entregar material educativo para apoyar el proceso de cesación en pacientes que desean dejar de fumar?
- ¿Conoces las terapias sustitutivas de nicotina para dejar de fumar?
- ¿Conoces otros tratamientos farmacológicos para dejar de fumar?
- Actualmente, tengo los conocimientos y habilidades suficientes para ayudar a un/a fumador/a a dejar de fumar

A base de los cambios en la formación reportada por los/las participantes entre el estudio basal y el seguimiento, se estableció la transición de aquellos/as participantes que han afirmado no haber recibido formación sobre un determinado ítem en el estudio basal y han pasado a declarar sí haberla recibido en el seguimiento, como *adquirir más formación*. Los//las participantes que continuaron reportando no haber recibido la formación se definieron como *no adquirir más formación*.

Las principales variables independientes fueron las características sociodemográficas de los/las participantes, tanto en el estudio basal como en el seguimiento.

- **Características en el estudio basal.** Se recogió información acerca del sexo (femenino o masculino), la fecha de nacimiento, para calcular posteriormente la edad en años y agruparla en tres categorías (≤ 19 , 20-24 y ≥ 25), el curso académico en el grado de Enfermería (primero, segundo, tercero o cuarto) agrupando primero con segundo y tercero con cuarto, el lugar de nacimiento (Cataluña, España [no Cataluña] o fuera de España), juntamos España (no Cataluña) y fuera de España como fuera de Cataluña, la localización de la universidad donde estaban realizando los estudios de Enfermería (Barcelona, Girona, Lérida o Tarragona), juntamos las tres últimas provincias como fuera de Barcelona y, finalmente, el tipo de universidad (pública, concertada o privada).
- **Características en el seguimiento.** Dado que se disponía de la información relacionada con el sexo y la edad del estudio basal, en el seguimiento se incluyeron las variables que podían haberse modificado tras el período transcurrido entre las dos encuestas y se introdujeron tres variables (núcleo de convivencia, ingresos mensuales y estado civil) que aportaban información novedosa que permitía ampliar los análisis. Se preguntó si en el momento del seguimiento habían finalizado el grado de Enfermería (sí o no), su ocupación (estudiantes de Enfermería, enfermeros/as u otra), el curso de los/las que seguían estudiando el grado de Enfermería (primero, segundo,

tercero o cuarto), juntando también primero con segundo y tercero con cuarto, el ámbito laboral (atención primaria, hospital u otro) y el tipo de institución laboral de los/las que ejercían de enfermeros/as (pública, concertada o privada), el núcleo de convivencia (familiar o independiente), los ingresos mensuales del núcleo de convivencia (no hay ingresos, ≤ 900 €, de 901 €–1500 €, 1501 €–3000 €, 3001 €–6000 €, de 6001 €–9000 €, > 9000 € o no lo sé/ no quiero contestar). Para el análisis, esta variable se recodificó en ≤ 1500 €, 1501 €–3000 €, > 3000 € y no lo sé/no quiero contestar. Por último, se preguntó el estado civil (soltero, casado o en pareja, divorciado o separado o viudo).

6. Sistema de codificación de los/las participantes de la cohorte

Para posibilitar el seguimiento de cada estudiante de forma anónima, fue necesario establecer un mecanismo de enlace para relacionar los datos recogidos en el seguimiento con los del estudio basal. Dado que en el seguimiento se utilizó el correo electrónico proporcionado por los/las participantes en el estudio basal para enviarles el acceso al cuestionario en línea, las respuestas obtenidas (en el seguimiento) de cada persona se pudieron enlazar directamente con las del basal uniendo las dos bases de datos mediante el mismo correo electrónico. Toda la información se registró en una base de datos creada mediante el programa estadístico *IBM SPSS Statistics versión 25*. También se utilizó la pregunta sobre la escuela de Enfermería en la que estaban matriculados/as en el curso 2015–2016 (estudio basal) para asegurar la correcta correspondencia de los datos, ya que esta pregunta fue formulada en el cuestionario basal y en el seguimiento con tal fin.

Una vez unidas las respuestas en una misma base de datos y comprobada la correcta correspondencia de los datos, se utilizó el código numérico asignado en la codificación de las respuestas basales para identificar a los/las participantes a la hora de realizar los análisis estadísticos, garantizando así su anonimato.

7. Análisis de los datos

Para el análisis descriptivo se calculó la prevalencia (%) y sus correspondientes intervalos de confianza (IC) del 95%. Asimismo, se obtuvieron: (i) las características sociodemográficas del basal y del seguimiento de la cohorte de estudiantes de Enfermería en su totalidad y de

los/las participantes que eran fumadores/as inicialmente; (ii) la prevalencia y patrón de consumo de productos de tabaco, e-cigarrillos y cannabis en el basal y el seguimiento; (iii) las actitudes en relación con el rol de los/las estudiantes y profesionales de la salud y de las entidades sanitarias en relación con el control del tabaquismo en el basal y el seguimiento; y (iv) la formación recibida durante el grado de Enfermería sobre tabaquismo en el basal y el seguimiento.

Para el análisis bivariado se utilizó la prueba Chi-cuadrado, y el test exacto de Fisher cuando era necesario, dado que todas las variables analizadas eran cualitativas. Además, se calcularon las Odds Ratio (OR) y sus intervalos de confianza del 95% (IC95%) para conocer las diferencias entre las variables exploradas; sexo, edad basal, estado de consumo de tabaco basal y del seguimiento, curso académico basal y participación en el seguimiento.

Para el análisis multivariado se utilizó el modelo de regresión logística para calcular las OR ajustadas y el intervalo de confianza del 95%. Por una parte, este modelo permitió analizar los predictores de seguimiento de la cohorte, de tener una actitud positiva y de haber recibido formación sobre tabaquismo. Para estos análisis, el modelo se ajustó por las variables sociodemográficas en el basal (sexo, edad, lugar de nacimiento y localización y tipo de escuela de Enfermería) y el estado de consumo basal. Por otra parte, permitió explorar los predictores de cambio entre el estudio basal y el seguimiento, incluyendo cambiar el patrón de consumo de tabaco, recaer, dejar de fumar, reducir el consumo de CPD (≥ 5), adquirir actitudes positivas en relación con el rol de los/las estudiantes y profesionales de la salud y de las entidades sanitarias en relación con el control del tabaquismo y recibir más formación durante el grado de Enfermería sobre tabaquismo. Para determinar los predictores de dejar de fumar y reducir el consumo de CPD (≥ 5) se incluyeron las siguientes variables del basal: sexo, edad, fumar para reducir el estrés/relajarse, patrón de consumo basal (fumador/a diario/a vs. fumador/a ocasional) y grado de dependencia a la nicotina. Además, para los predictores de dejar de fumar se incluyó la intención de reducir el consumo y para los de reducir el consumo de CPD (≥ 5), la edad de inicio del consumo y haber iniciado el consumo por influencia de un/a familiar/amigo/a fumador/a. Por último, para el resto de análisis se incluyeron las siguientes variables del basal: sexo, edad, lugar de nacimiento, localización y tipo de escuela de Enfermería, curso académico y el estado de consumo.

Para los análisis estratificados por ocupación de los/las participantes que habían iniciado el consumo, recaído o dejado de fumar en el seguimiento se utilizó la prueba de Cochran-Mantel-Haenzsel.

Finalmente, para validar los resultados, se consideró significativo todo valor de $p < 0,05$. Todos los análisis se realizaron con el paquete estadístico IBM SPSS Statistics versión 25.

8. Consideraciones éticas

El consentimiento informado para contactar con los/las participantes en el seguimiento (ECTEC-S) se obtuvo por escrito en el estudio basal (ECTEC), en el cual se solicitó a todos/as los/las estudiantes de Enfermería que cumplimentasen voluntariamente su correo electrónico en caso de que desearan colaborar en futuros seguimientos (Anexo 2). Además, en la invitación del ECTEC-S, se incluyó también una hoja informativa y, nuevamente, la petición explícita de su consentimiento para participar (Anexo 5).

Para la realización del estudio de seguimiento, se contó con la aprobación del Comité de Investigación Clínica del Hospital de Bellvitge (PR239/2018) (Anexo 7) y de la Comisión de Bioética de la Universidad de Barcelona (IRB00003099) (Anexo 8) y con la autorización de la dirección de todas las escuelas de Enfermería.

RESULTADOS

RESULTADOS

A continuación, se presentan los seis artículos que conforman esta tesis doctoral, cuatro de los cuales están ya publicados y dos enviados para su publicación (Tabla 3).

Tabla 3: Características de los artículos de la tesis doctoral

ARTÍCULO I

Autores: Cristina Martínez, Antoni Baena, Yolanda Castellano, Marcela Fu, Mercè Margalef, Olena Tigova, Ariadna Feliu, Kenza Laroussy, Jordi Galimany, Montserrat Puig, Albert Bueno, Antonio López, Esteve Fernández

Título: Prevalence and determinants of tobacco, e-cigarettes, and cannabis use among nursing students: A multicenter cross-sectional study

Revista/referencia: Nurse Education Today. 2018; 74: 61-68

Factor de impacto del año 2018 (FI): 2,442

Categorías y ránquing: Nursing (SSCI): D1, 9ª revista de 118; Nursing (SCIE): D1, 9ª revista de 120; Education, Scientific disciplines (SCIE): Q1, 10ª de 41

Número de citas (hasta 10/09/2023): 33

PMID: 30583124

DOI: <https://doi.org/10.1016/j.nedt.2018.11.018>

ARTÍCULO II

Autores: Kenza Laroussy, Yolanda Castellano, Marcela Fu, Antoni Baena, Ariadna Feliu, Mercè Margalef, Jon Aldazabal, Olena Tigova, Jordi Galimany, Montserrat Puig, Carmen Moreno, Albert Bueno, Antonio López, Judith Roca, Esteve Fernández, Cristina Martínez

Título: Determinants of participation in an online follow-up survey among nursing students

Revista/referencia: Journal of Professional Nursing, 2022; 41: 108-114

FI del año 2022: 2,5

Categorías y ránquing: Nursing (SSCI): Q2, 34ª revista de 123; Nursing (SCIE): Q2, 37ª revista de 125

Nombre de citaciones (hasta 10/09/2023): 1

PMID: 35803645

DOI: <https://doi.org/10.1016/j.profnurs.2022.04.008>

ARTÍCULO III

Autores: Kenza Laroussy, Yolanda Castellano, Marcela Fu, Antoni Baena, Ariadna Feliu, Armando Peruga, Mercè Margalef, Jon Aldazabal, Olena Tigova, Jordi Galimany, Montserrat Puig, Carmen Moreno, Albert Bueno, Antonio López, Judith Roca, Judith Saura, Esteve Fernández, Cristina Martínez

Título: Transitions in smoking status in nursing students: A prospective longitudinal study

Revista/referencia: Journal of Advanced Nursing. 2023; 00: 1-17

FI del año 2022: 3,8

Categorías y ránquing: Nursing (SSCI): D1, 11ª revista de 123; Nursing (SCIE): D1, 11ª de 125

Nombre de citas (hasta 10/09/2023): 0

PMID: 36978253

DOI: <https://doi.org/10.1111/jan.15665>

ARTÍCULO IV

Autores: Marcela Fu, Yolanda Castellano, Kenza Laroussy, Antoni Baena, Mercè Margalef, Ariadna Feliu, Jordi Galimany, Montserrat Puig, Carmen Moreno, Raúl Sancho, Albert Bueno, Antonio López, Joseph Gudysh, Esteve Fernández, & Cristina Martínez

Título: Passive exposure and perceptions of smoke-free policies in hospital and university campuses among nursing students: A cross-sectional multicenter study

Revista/referencia: Tobacco induced diseases. 2023; 21: 93

FI del año 2022: 3,7

Categorías y ránquing: Public, Environmental & Occupational Health (SSCI): Q2, 62ª revista de 180; Public, Environmental & Occupational Health (SCIE): Q2, 85ª revista de 207; Substance abuse (SSCI): Q2, 14ª revista de 38; Substance abuse (SCIE): Q2, 9ª revista de 21

Número de citas (hasta 10/09/2023): 0

PMID: PMC10350793

DOI: <https://doi.org/10.18332/tid/167390>

ARTÍCULO V

Autores: Kenza Laroussy, Yolanda Castellano, Marcela Fu, Antoni Baena, Ariadna Feliu, Armando Peruga, Mercè Margalef, Olena Tigova, Jordi Galimany, Montserrat Puig, Carmen

Moreno, Albert Bueno, Antonio López, Judith Roca, Judith Saura, Esteve Fernández, Cristina Martínez

Título: Determinants of tobacco use transitions in smoker nursing students: A prospective longitudinal study

Revista/referencia: The Journal of Nursing Research (enviado)

ARTÍCULO VI

Autores: Kenza Laroussy, Yolanda Castellano, Marcela Fu, Antoni Baena, Ariadna Feliu, Armando Peruga, Mercè Margalef, Olena Tigova, Jordi Galimany, Montserrat Puig, Carmen Moreno, Albert Bueno, Antonio López, Judith Roca, Judith Saura, Esteve Fernández, Cristina Martínez

Título: Predictors of acquiring positive attitudes and training towards tobacco control among nursing students: A prospective longitudinal study

Revista/referencia: Nursing Education Today (enviado)

ARTÍCULO I

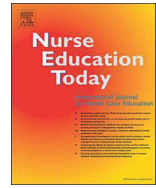
Prevalence and determinants of tobacco, e-cigarettes, and cannabis use among nursing students: A multicenter cross-sectional study



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Prevalence and determinants of tobacco, e-cigarettes, and cannabis use among nursing students: A multicenter cross-sectional study

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ABSTRACT

Background: Nurses are important agents in public health, which includes being active in tobacco control. Studies show that nurses who smoke are less inclined to offer smoking cessation aid. Nursing students, as the future labor force of nursing, are one of the key groups to monitor.

Objectives: To identify the prevalence and determinants of use of several tobacco products, e-cigarettes, and cannabis among nursing students in Catalonia.

Design: Cross-sectional multicenter study.

Settings: 15 university nursing schools in Catalonia (Spain) in 2015–2016.

Participants: Nursing students attending class at the day of the survey.

Methods: An anonymous, self-administered questionnaire based on the Global Health Professional Survey was designed. The questions included information on consumption of several tobacco products (manufactured cigarettes, roll your own cigarettes, etc.), e-cigarettes, and cannabis. We estimated the prevalence of use (%) and computed multilevel logistic regressions models, at two levels, to calculate the odds ratios (OR) and their corresponding 95% confidence intervals (CI), adjusting for several individual sociodemographic variables and the nursing school as a grouping variable.

Results: 4381 students participated in the study (57.2% of Nursing students in Catalonia at the time of the survey). 29.7% (95%CI: 27.2–32.2) were smokers (18.4% daily and 11.3% occasionally). 66.4% smoked manufactured cigarettes, 47.0% roll your own cigarettes, 10.0% waterpipe, and 0.4% e-cigarettes. The main predictors of smoking were: being ≥ 25 years (OR = 2.57, 95%CI: 2.03–3.26) and belonging to other Spanish regions (OR = 1.82, 95%CI: 1.30–2.54). 71.5% had low nicotine dependence as defined by the Heavy Smoking Index. Among 11.5% (95%CI: 10.6–12.4) of students used cannabis (daily or occasionally), and men presented higher odds of use (OR = 2.81, 95%CI: 2.11–3.73) than women.

Conclusions: Tobacco and cannabis use is high among nursing students. It is necessary to carry out early tobacco and cannabis cessation programs among young nursing students.

1. Introduction

Nurses are important agents in public health, which includes being

active in tobacco control (WHO Tobacco Free Initiative, 2005), due to tobacco use being the leading cause of preventable disease, disability, and death worldwide (World Health Organization, 2008).

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As the largest health care workforce, nurses are well placed to promote health options thanks to their skills and experience with patients in a variety of settings. Nurses are responsible for primary health care and education in tobacco control and act as role models (Sarna et al., 2010). The available evidence suggests that nurses' personal health behavior may influence their health promotion practices (Kelly et al., 2017); several studies show that nurses who smoke are less inclined to offer smoking cessation aid to their smoker patients (Duaso et al., 2017; Mujika et al., 2017; Radsma and Bottorff, 2009; Gonzalez et al., 2009). Therefore, monitoring tobacco consumption among nurses is of particular interest.

2. Background

Prevalence of tobacco use among nurses in Spain is high compared to nurses from other countries, such as the UK or USA (4.6–18%) (Duaso et al., 2017). Tobacco consumption prevalence among Spanish nurses is similar or slightly lower than in the general population (around 25–30%) (Duaso et al., 2017; Martínez et al., 2016); however, it is still high compared with doctors (16.4%) (Martínez et al., 2016). Several reasons have been offered to explain why the tobacco use is still higher among nurses compared to doctors including heavy workloads, long work hours, confrontation with harm and loss, and little time to take breaks, etc. (Nakata et al., 2010). Nevertheless, many nurses start smoking before beginning their nursing education. Since nursing is a professional area with significantly high female representation, the factors that influence tobacco consumption are similar to those that influence similar groups of females in the general population (Rowe and Macleod Clark, 2000; Clark and McCann, 2008).

Nursing students, as the future labor force of nursing, constitute one of the key groups to have their smoking consumption monitored to improve our understanding of the relation between their tobacco use and knowledge acquired during their studying years; this might be particularly valuable for active development of future tobacco control activities (WHO Tobacco Free Initiative, 2005). In 2005, the World Health Organization launched “The Global Health Profession Student Survey” (GHPSS), an international study aimed to assess tobacco use and exposure of second-hand smoke among third-year dental, medical, nursing and pharmacy students in several countries (GTSS Collaborative Group, 2006; Warren et al., 2011). This study pointed out that 20% of the students were current smokers and 10% of them used other tobacco products (Warren et al., 2008).

Although the GHPSS has not been conducted among nursing students in Spain, tobacco consumption has been monitored among Spanish nursing students in the last decade (Gonzalez et al., 2009; Pericas et al., 2009; Fernandez et al., 2010). These studies show that tobacco use ranges from 18.2% (Ordas et al., 2015) to 28.8% (Fernandez et al., 2010). However, these studies were conducted only in one university, had a limited sample size, only explored manufactured cigarette smoking prevalence, and hence are not representative of the general population of nursing students.

Tobacco use among the Spanish general population has changed over the last years, with a significant reduction in the prevalence of manufactured cigarette users and an increase of exclusively roll your own cigarettes users, as well as the combination of both called dual users (manufactured and roll your own) (Sureda et al., 2017a, 2017b; Perez-Rios et al., 2015). Moreover, there has been an increase in the use of other tobacco products, such as waterpipe and e-cigarettes, especially among the younger population (Lidon-Moyano et al., 2016a; Lidon-Moyano et al., 2016b). Furthermore, cannabis use in combination with tobacco is prevalent among the youth in Spain; with about one-third of University students who confirm having consumed it in the last 30 days (Nieves Y. Fundación Atenea, 2011).

3. Aim

Therefore, given the lack of comprehensive studies that monitor the use of all forms of tobacco products (including manufactured cigarettes, roll your own, and waterpipes), e-cigarettes, and cannabis among nursing students in Catalonia, this study was aimed to identify the prevalence and determinants of their use.

4. Method

4.1. Design and Participants

Cross-sectional multicenter study conducted in 15 University Nursing Schools in Catalonia. The participants were students enrolled in a Nursing degree from any of these University schools, from the first to the fourth year of school, during the period from October 2015 to June 2016 (2015–2016 academic year). Overall, 7660 students were enrolled at the 15 Catalan Nursing University schools during the academic year 2015–2016 (aggregated data provided by each university). For inclusion, subjects were required to meet the following criteria: (1) to be ≥ 18 year old, (2) to be registered in the core subject class in which the study data was collected, (3) to be at class the day of the data collection, and (4) to provide written informed consent to participate in the study.

4.2. Instrument and Variables

An anonymous, self-administered paper version questionnaire based on the Global Health Professional Survey (GHPS) (Warren et al., 2011) was designed. The questionnaire included 62 questions that contained information on smoking status, use of several types of tobacco products (waterpipe, joints, etc.), and cannabis use. The questionnaire (available upon request) was piloted in one of the Universities to test its reliability and acceptability (Martínez et al., 2017).

For this study, the main dependent variable was smoking status, classified into three categories: 1) daily smoker, person who smokes daily; 2) occasional smoker, a person who smokes but not every day; and 3) non-smoker, including a former smoker (person who smoked, but remained abstinent for 6 or more months) and/or a never smoker (Husten, 2009). Current (daily and occasional) and former smokers were asked about their age at starting smoking and number of cigarettes smoked per day. We obtained information about the type of tobacco product used (manufactured cigarettes, roll your own cigarettes, cigars/cigarillos/pipes, and waterpipes, also known as shisha or hookah); the number of cigarettes smoked per day (that were classified as < 10 , $10-19$, ≥ 20); time before smoking the first cigarette (≤ 30 , > 30); nicotine dependence was assessed using the Heavy Smoking Index (HSI), a six-point scale calculated from the number of cigarettes smoked per day and the time to smoking first cigarette after waking. The HSI score was then categorized into a three-category variable: low (0–2), medium (3–4) and high (5–6) dependence (Chabrol et al., 2005). We also explored the main reasons for continuing smoking, whether responders were thinking about quitting or reducing their current consumption, and if they had done a serious quitting attempt in the last year.

In addition, we asked all participants whether they consumed e-cigarettes and cannabis (daily or occasionally) or if they were former (person who consumed in the past but has not used in the last 6 months) or never consumed (person who has never used these products).

The main independent variables explored were sociodemographic data including sex, age (classified as < 19 , $20-24$ and > 25), year of nursing school (first, second, third, and fourth), place of birth (Catalonia, from other regions of Spain, and from outside of Spain) and type of Nursing school (public, private with public funding or private).

4.3. Procedure

Before starting the fieldwork, we contacted the deans of each School of Nursing program to request their permission to conduct the survey. In addition, we requested their help for having a contact person who acted as a liaison in each center. All 15 Schools agreed to participate. The fieldwork implied several visits to each of the centers to reach all the courses.

In each of the selected classrooms, all students were orally informed about the main objectives of the study by one of the researchers, and a participant information sheet was provided. All participants gave an informed consent for voluntary participation before completing the questionnaire. Although students were keenly invited to participate, neither their teachers nor the researchers who conducted the fieldwork imposed students to participate. The questionnaire had an average time of 15 min for completion.

For the extraction of data, all the paper-based questionnaires were digitized and processed with Optical Character Recognition (OCR) and Intelligent Character Recognition (ICR) Kofax© technology.

The study was approved by the Ethics and Clinical Research Committee of ICO-IDIBELL (PR-173/16).

4.4. Data Analysis

We computed prevalence (%) and their corresponding 95% confidence intervals (CI). The Kolmogorov–Smirnov test was used to determine whether our data follow a normal distribution. All variables used in the analyses presented in this work follow the precepts of normality. Then, for bivariate analysis, we used Chi-square test for qualitative variables. For estimating factors of being a tobacco, a cannabis and, a waterpipe user we employed a multilevel logistic regression model with fixed-effects, taking Nursing School as the second level. We computed Odds ratios (OR) and 95% CI with weights derived from the participation rates adjusted for sex, age and place of birth. The analyses were conducted using SPSS© 21.0 and STATA 13 for Windows©.

5. Results

5.1. Description of the Sample/Characterization of Participants

The final sample was composed of 4381 students (57.2% of students enrolled in the academic year 2015–2016). 98.5% (4381/4447) of the students who were in class at the time of the survey agreed to participate.

Table 1 describes participants' sociodemographic characteristics. Overall, 83.9% of the study participants were women, 51.7% were 20–24 years old, and 32.0% were first-year students. The majority of the respondents were born in Catalonia.

5.2. Smoking Status

Among the participants, 29.7% were smokers (95%CI: 27.2–32.2), 57.2% (95%CI: 54.5–59.9) were never smokers and 13.1% (95%CI: 11.3–14.9) were former smokers. Overall, 38.1% of smokers were occasional smokers. The proportion of daily smokers was similar among men (20.5%) and among women (18.0%). Tobacco consumption prevalence increased by age group and year of school (Table 2). Participants from private schools had a higher percentage of smokers (daily and occasional together) than those from public or private with public funding schools (34.7%, 24.3%, 32.9%, respectively (p < 0.001).

Correlates of being a daily and a former smoker are displayed in Fig. 1. Smokers were more likely to be from the older groups (21–24 and ≥25 years-old) and being born in Catalonia (OR = 1.73; 95% CI: 1.29–2.30) or Spain (OR = 1.82; 95% CI: 1.30–2.54) compared to those born abroad. The model for daily smokers shows the same variables,

Table 1
Descriptive sociodemographic characteristics of the participants.

	Total		Sex				p-Value
			Men		Women		
	n	%	n	%	n	%	
Overall	4381	100	707	16.1	3674	83.9	
Age groups							< 0.001
≤ 19 years	1364	31.4	150	21.3	1214	33.4	
20–24 years	2246	51.7	371	52.8	1875	51.5	
≥ 25 years	733	16.9	182	25.9	551	15.1	
Year of school							0.936
First	1352	32.0	207	31.0	1145	32.2	
Second	1108	26.2	180	27.0	928	26.2	
Third	949	22.5	151	22.6	798	22.4	
Fourth	813	19.3	129	19.4	684	19.2	
Place of birth							0.495
Catalonia	3296	77.6	524	77.3	2772	77.7	
Spain	602	14.2	104	15.3	498	14.0	
Outside of Spain	347	8.2	50	7.4	297	8.3	
Location of the nursing school							0.082
Barcelona	3406	77.7	549	77.7	2857	77.8	
Girona	322	7.4	42	5.9	280	7.6	
Tarragona	384	8.8	60	8.5	324	8.8	
Lleida	269	6.1	56	7.9	213	5.8	
Type of nursing school							0.244
Public	1970	45.0	299	42.3	1671	45.5	
Private with public funding	841	19.2	137	19.4	704	19.2	
Private	1570	35.8	271	38.3	1299	35.3	

with stronger associations (Fig. 1). Furthermore, the only significant correlate of being a former smoker was belonging to the older age groups (21–24 and ≥25 years-old) (Fig. 1).

As shown in Table 3, among current smokers, 65.2% had started to smoke before 17 years old. According to the type of tobacco products used, we observed that 66.4% of smokers consumed manufactured cigarettes, 47.0% roll your own cigarettes and 10.0% waterpipes. E-cigarettes were used by 0.4%. Users of roll your own cigarettes and waterpipes were more predominant in the youngest group compared to the oldest age groups (p < 0.001), and 17.7% of smokers were dual-users of both manufactured and roll your own cigarettes. This dual use was more frequent among the youngest (p < 0.001). The majority of these dual users consumed < 10 cigarettes per day (CPD) without differences between men and women. Most of the young students (≤19) consumed < 10 CPD (58.4%) while 42.1% of students those aged ≥25 smoked ≥20 CPD (p < 0.001) (Table 3).

Concerning nicotine dependence, 71.5% of smokers had a low dependence, but smokers from the oldest age group had a higher proportion of smokers with high nicotine dependence level compared to rest of age groups (p < 0.001) (Table 3).

With regard to the quit attempts, 26.2% of smokers had attempted to stop smoking in the last year and 50.8% of them made ≥2 attempts. Only 17.2% were seriously thinking about quitting at the time of the survey; however, 56.9% were thinking of reducing their consumption (Table 3).

5.3. Main Reasons for Relapsing and Continuing Smoking

The main reasons for relapsing from smoking were lack of social support (49.7%), to experiencing symptoms of abstinence (42.6%), as well as the idea that smoking can be controlled (29.8%). Only women considered that smoking was a good weight controller (0 vs. 9.7%, p < 0.001) (Table 3).

The main reasons for continuing smoking included considering smoking pleasurable (64.0%) controlling their stress (50.5%), not being able to quit (25.1%), and having smokers in their social environment

RESULTADOS

Table 2
Smoking status of nursing students according to sociodemographic characteristics.

	Current Smokers						p-Value*	Non-smokers				p-Value**
	All (a)		Daily		Occasional			Former smoker (b)		Never smoker (c)		
	n	%	n	%	n	%		n	%	n	%	
Overall	1288	29.7	797	18.4	491	11.3		567	13.1	2484	57.2	
Sex							0.447					0.146
Men	223	32.0	143	20.5	80	11.5		98	14.1	375	53.9	
Women	1065	29.3	654	18.0	411	11.2		469	12.9	2109	57.9	
Age groups							< 0.001					< 0.001
≤ 19 years	320	23.7	146	10.8	174	12.9		120	8.9	913	67.4	
20–24 years	703	31.5	446	20.0	257	11.5		258	11.6	1266	56.9	
≥ 25 years	252	35.0	199	27.6	53	7.4		181	25.1	288	39.9	
Year of school							< 0.001					0.013
First	398	29.7	221	16.5	177	13.2		145	10.8	798	59.5	
Second	295	26.9	169	15.4	126	11.5		153	13.9	650	59.2	
Third	299	31.9	206	22.0	93	10.0		123	13.1	514	54.9	
Fourth	258	32.0	176	21.8	82	10.2		112	13.9	437	54.1	
Place of birth							0.001					0.018
Catalonia	1002	30.6	642	19.6	360	11.0		428	13.1	1840	56.3	
Spain	178	29.7	103	17.3	75	12.5		76	12.7	344	57.5	
Outside of Spain	73	21.7	32	9.5	41	12.2		48	14.2	216	64.1	
Location of the nursing school							0.928					< 0.001
Barcelona	1053	31.3	656	19.5	397	11.8		437	13.0	1875	55.7	
Girona	76	23.6	46	14.3	30	9.4		52	16.1	194	60.2	
Tarragona	86	22.4	51	13.3	35	9.1		48	12.5	250	65.1	
Lleida	73	27.2	44	16.4	29	10.8		30	11.2	165	61.6	
Type of nursing school							< 0.001					< 0.001
Public	476	24.3	255	13.0	221	11.3		234	11.9	1249	63.8	
Private with public funding	272	32.9	178	21.5	94	11.4		133	16.1	422	51.0	
Private	540	34.7	364	23.4	176	11.3		200	12.9	813	52.4	

* Daily and occasional smokers.

** All smokers (a), former smokers (b) and never smokers (c).

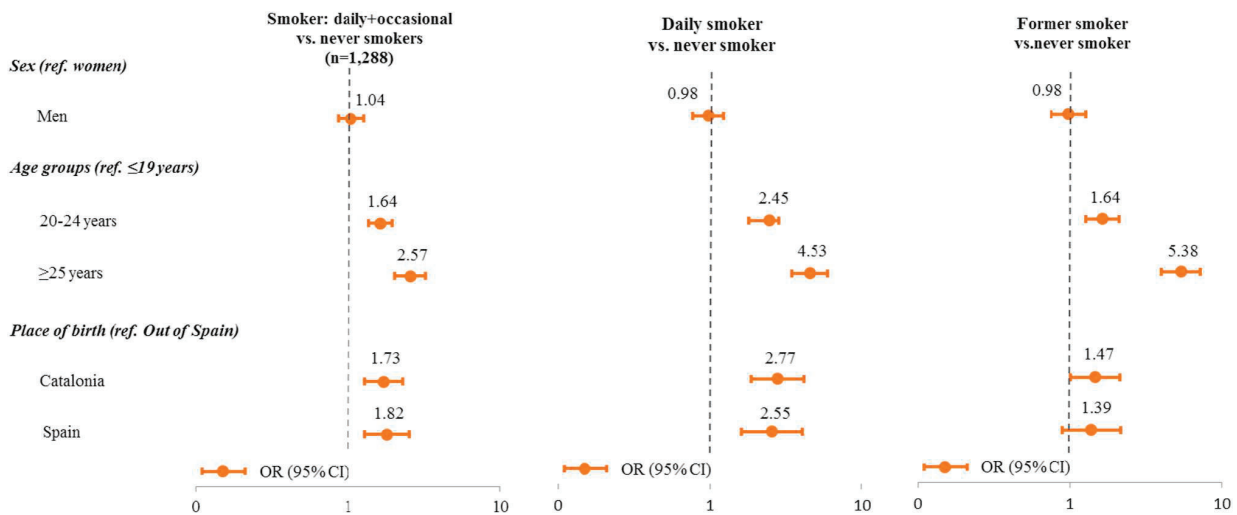


Fig. 1. Sociodemographic factors associated with being a smoker, daily smoker and former smoker. Adjusted for sex, age and place of birth by means of logistic regression.

(21.5%). After adjusting for age, place of birth and Nursing school, women reported some reasons for continuing smoking more frequently than men, including among others: controlling their stress (52.3% vs. 41.9%; $p < 0.001$), having a social environment that smokes (23.3% vs. 12.6%; $p < 0.001$), and using smoking as a method for controlling their weight (3.4% vs. 0.9%; $p < 0.001$) (Table 4).

5.4. Cannabis and Waterpipe Use

Overall, 11.5% (95%CI: 10.6-12.4) of students used cannabis (1.0% daily and 10.5% occasionally). Cannabis use was almost three times more likely among men than among women (OR = 2.81; 95%CI: 2.11-3.73; $p = 0.001$). The odds of cannabis use are gradually lower

Table 3
Tobacco products consumption patterns among smokers overall and according to sex and age groups (n = 1288).

	Total n (%)	Sex		p-Value	Age groups (years)			p-Value
		Men n (%)	Women n (%)		≤19 n (%)	20–24 n (%)	≥25 n (%)	
Age of initiation				0.036				0.142
< 17 years	834 (65.2)	130 (59.1)	704 (66.5)		221 (69.3)	440 (63.0)	165 (66.3)	
≥17 years	445 (34.8)	90 (40.9)	355 (33.5)		98 (30.7)	258 (37.0)	84 (33.7)	
Type of tobacco product consumed*								
Manufactured cigarettes	855 (66.4)	145 (65.0)	710 (66.7)	0.624	203 (63.4)	469 (66.8)	174 (69.0)	0.349
Roll-your-own (RYO)	605 (47.0)	108 (48.4)	497 (46.8)	0.648	178 (55.6)	332 (47.4)	91 (36.1)	< 0.001
Cigars, cigarettes, pipe	44 (3.4)	8 (3.6)	36 (3.4)	0.883	13 (4.1)	26 (3.7)	5 (2.0)	0.345
Electronic cigarettes	15 (0.4)	5 (0.7)	10 (0.3)	0.063	5 (0.4)	6 (0.3)	4 (0.6)	0.515
Waterpipe	128 (10.0)	23 (10.3)	105 (9.9)	0.847	56 (17.5)	66 (9.4)	4 (1.6)	< 0.001
Combined use of tobacco products				0.724				< 0.001
Only manufactured cigarettes	634 (51.2)	104 (49.1)	530 (51.7)		126 (41.5)	351 (51.5)	150 (62.2)	
Only RYO cigarettes	385 (31.1)	67 (31.6)	318 (31.0)		101 (33.2)	215 (31.5)	67 (27.8)	
Manufactured and RYO cigarettes	219 (17.7)	41 (19.3)	178 (17.3)		77 (25.3)	116 (17.0)	24 (10.0)	
Number of cigarettes smoked (manufactured + RYO)				0.085				< 0.001
< 10 cigarettes/day	550 (42.7)	84 (37.7)	466 (43.8)		187 (58.4)	289 (41.1)	67 (26.6)	
10–19 cigarettes/day	385 (29.9)	65 (29.1)	320 (30.0)		88 (27.5)	216 (30.7)	79 (31.3)	
≥20 cigarettes/day	353 (27.4)	74 (33.2)	279 (26.2)		45 (14.1)	198 (28.2)	106 (42.1)	
Heavy smoking index				0.144				< 0.001
Low (0–2)	922 (71.5)	150 (67.3)	772 (72.5)		267 (83.4)	504 (71.7)	142 (56.3)	
Medium (3–4)	279 (21.7)	52 (23.3)	227 (21.3)		42 (13.2)	155 (22.0)	78 (31.0)	
High (5–6)	87 (6.8)	21 (9.4)	66 (6.2)		11 (3.4)	44 (6.3)	32 (12.7)	
Quit attempts in the last year				0.069				0.022
Yes	336 (26.2)	69 (31.1)	267 (25.2)		65 (20.5)	201 (28.7)	66 (26.2)	
No	946 (73.8)	153 (68.9)	793 (74.8)		252 (79.5)	499 (71.3)	186 (73.8)	
Number of quit attempts in the last year				0.067				0.203
1	152 (49.2)	38 (59.4)	114 (46.5)		27 (47.4)	86 (46.0)	36 (59.0)	
≥2	157 (50.8)	26 (40.6)	131 (53.5)		30 (52.6)	101 (54.0)	25 (41.0)	
Main reasons for continuing smoking*								
Abstinence symptoms	143 (42.6)	26 (37.7)	117 (43.8)	0.358	27 (41.5)	88 (43.8)	27 (40.9)	0.897
Concern about their weight	26 (7.7)	0 (0.0)	26 (9.7)	0.007	3 (4.6)	13 (6.5)	9 (13.6)	0.098
Belief in self-control	100 (29.8)	18 (26.1)	82 (30.7)	0.454	26 (40.0)	54 (26.9)	18 (27.3)	0.118
Lack of support from social network	167 (49.7)	30 (43.5)	137 (51.3)	0.246	38 (58.5)	100 (49.8)	26 (39.4)	0.091
Other reasons	62 (18.5)	17 (24.6)	45 (16.9)	0.137	12 (18.5)	33 (16.4)	16 (24.2)	0.363
thinking about quitting now				0.557				0.579
Yes**	214 (17.2)	40 (18.6)	174 (16.9)		52 (17)	123 (18.1)	37 (15.2)	
No	1028 (82.8)	175 (81.4)	853 (83.1)		254 (83)	557 (81.9)	207 (84.8)	
Thinking in reducing				0.826				0.503
Yes	710 (56.9)	122 (56.2)	588 (57.0)		182 (59.7)	382 (55.7)	140 (57.1)	
No	538 (43.1)	95 (43.8)	443 (43.0)		123 (40.3)	304 (44.3)	105 (42.9)	

* Multiple response.

** Now or a month ahead.

among older age groups. Furthermore, cannabis users were more likely to be former smokers and being born in Catalonia (Fig. 2).

Finally, 2.9% (95%CI: 2.0–3.8) of students used waterpipes at least once a week. The odds being a waterpipe user compared to the odds of use of other tobacco products were higher among men, among younger age groups and among those born abroad (Fig. 2).

6. Discussion

The overall prevalence of smoking among nursing students in Catalonia was 29.7%; 18.4% were daily smokers and 11.3% occasional smokers. The overall percentage of smokers in our sample was also higher than that reported among Catalan 15–24 years old females (21.5%, data from 2014 survey collapsed daily and occasional smokers) (Departament de Salut, 2013). Likewise the percentage of daily consumers in our sample was higher than females 15–24 years old from the general population of the majority of the European countries (except for Austria, Hungary, and Spain, data from 2014) (European Commission, 2015). Moreover, these figures are higher than the ones reported by surveys conducted among nursing students in Europe in the last five years (Lehmann et al., 2014; Ben Rejeb et al., 2016) and in Spain (between 16.0% to 18.2%) (Ordas et al., 2015; Fernandez et al., 2015; Lana et al., 2015), with the exception of Germany (Lehmann et al.,

2014). In this sense, it is worth mentioning that the proportion of non-daily consumers in our sample is higher than reported in previous studies (in our study 38.1% of participants were occasional smokers). Furthermore, we found that the proportion of smokers is higher among students from private Universities while it is well described that adult populations from higher social classes smoke less in Spain (Bilal et al., 2016). The reasons for this high smoking consumption could be related to a low level of implementation of tobacco control policies in these campuses (Martinez et al., 2017) among other reasons related to social pressure, stress, etc. that need further investigation.

Although most students started to smoke before beginning their university studies, 34.8% of our sample started to smoke during their nursing studies. Moreover, we observed how the proportion of smokers increased with the year of school in the Nursing course, as reported in previous studies (Chandrakumar and Adams, 2015; Smith, 2007). It might be expected that nursing students would be more motivated to quit, given their knowledge of the health risks associated with smoking and their direct contact with patients that have smoking-related diseases; however, we did not observe this tendency. In this sense, we explored the main reasons for continuing smoking and relapsing, which include the lack of social support, stress, the presence of abstinence symptoms and the idea of having control over their smoking habit, as reported before among registered nurses in Australia (Berkelmans et al.,

Table 4
Reasons for having started smoking and continuing smoking among current smokers (n = 1288).

	Total n (%)	Sex		OR* (95%CI)	p-Value
		Men	Women		
		n (%)	n (%)		
Reasons for having started smoking**					
Their friends or colleagues smoked	802 (62.3)	143 (64.1)	659 (61.9)	1.10 (0.80–1.50)	0.563
A member of their family smoked	172 (13.4)	27 (12.1)	145 (13.6)	0.85 (0.54–1.33)	0.471
Their teacher smoked	9 (0.7)	2 (0.9)	7 (0.7)	1.20 (0.24–5.95)	0.825
To taste something new	610 (47.4)	98 (43.9)	512 (48.1)	0.91 (0.67–1.22)	0.521
It was trendy, fashionable	111 (8.6)	21 (9.4)	90 (8.5)	0.99 (0.60–1.66)	0.978
They wanted to seem grown-ups	145 (11.3)	29 (13.0)	116 (10.9)	1.13 (0.72–1.77)	0.589
They wanted to meet or flirt with others	48 (3.7)	16 (7.2)	32 (3.0)	2.56 (1.36–4.80)	0.003
Other/s	199 (15.5)	30 (13.5)	169 (15.9)	0.82 (0.53–1.27)	0.375
Reasons for continuing smoking**					
To maintain their weight	38 (3.0)	2 (0.9)	36 (3.4)	0.23 (0.05–0.96)	0.044
To control stress	650 (50.5)	93 (41.9)	557 (52.3)	0.68 (0.50–0.92)	0.011
To meet people or flirt with others	13 (1.0)	3 (1.4)	10 (0.9)	1.16 (0.25–5.47)	0.854
There are smokers in their social network	276 (21.5)	28 (12.6)	248 (23.3)	0.52 (0.34–0.80)	0.003
It is trendy, fashionable	6 (0.5)	0 (–)	6 (0.6)	–	–
They smoke for pleasure	822 (64.0)	142 (64.0)	680 (64.0)	1.05 (0.76–1.43)	0.783
They can't quit smoking	322 (25.1)	55 (24.7)	267 (25.2)	0.89 (0.63–1.26)	0.497
Other/s	97 (7.6)	19 (8.6)	78 (7.4)	1.28 (0.75–2.18)	0.360

* Adjusted for age, place of birth and type of nursing school [category of reference: women].

** Multiple response.

2011). However, our sample had specific tobacco consumption patterns that could belong to young populations, such as the high proportion of occasional smokers, the high number of smokers with low nicotine dependence, and the high percentage of smokers with high nicotine dependence only among the oldest age group. One out of four smokers expressed they continued smoking because they could not quit, showing an important addiction component, despite their young age. These findings probably indicate that smoking consumption consolidates among nursing students as they progress in their school years, not only in terms of shifting from occasional to daily smokers, but also in terms of increasing their nicotine dependence that seems to be one of the most important reasons for continuing smoking.

Our study is the first to assess the consumption of other tobacco products (roll your own cigarettes and waterpipe), e-cigarettes, and cannabis among University students, and in particular among nursing

students in Spain. We observed that six in ten smokers consumed manufactured cigarettes and nearly five in ten used roll your own cigarettes. We observed that the proportion of smokers using roll your own cigarettes was higher than in the general population in Spain (29%) (European Commission, 2017). Other studies conducted in Barcelona showed that younger smokers use roll your own cigarettes more frequently (Sureda et al., 2017a) mainly because they are cheaper than regular cigarettes.

With reference to e-cigarettes, we observed a lower percentage of users (0.4%) compared to the data reported by the recent Eurobarometer study (1.0%) (European Commission, 2017) and to the United States rates, where e-cigarette is common (35.8% among adults between 18 and 24 years old are users) (U.S. Department of Health and Human Services, 2016) and new forms of its use are emerging (ie. by mixing nicotine with flavors, marijuana, opium etc) (Wong et al.,

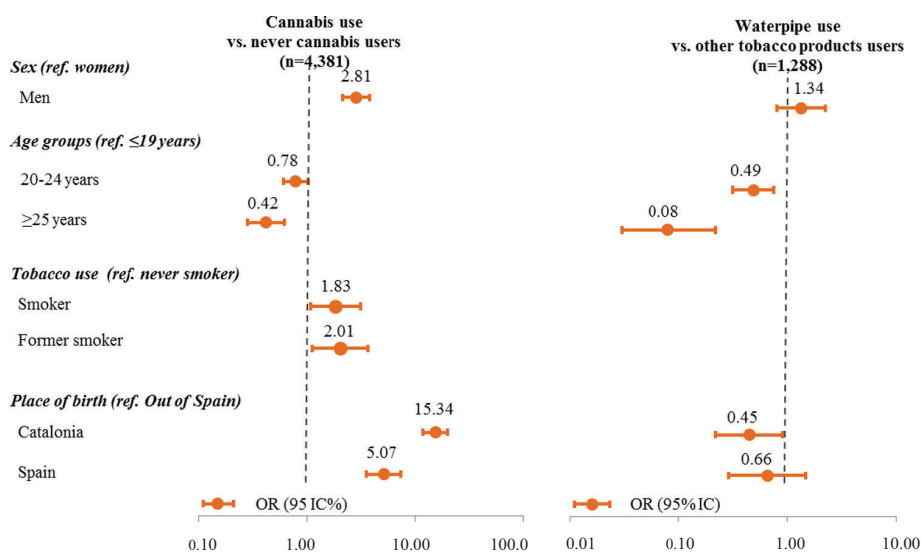


Fig. 2. Sociodemographic factors associated with being a cannabis and waterpipe user. Adjusted for sex, age and place of birth by means of logistic regression.

2018).

However, about 3.0% of the Nursing students consumed waterpipe tobacco (daily or occasionally), a much lower proportion than reported in the Eurobarometer for the Spanish young population (10.8%) and reported in overseas studies in the States (14.1%–25.3%) (Goodwin et al., 2014; Kulak et al., 2018) and Middle East countries where this tobacco product is culturally penetrated (Tucktuck et al., 2017). This difference highlights that the use of waterpipe is higher among younger age groups (European Commission, 2017). It is known that the high consumption of waterpipe among the younger groups compared to adults it is related to the lack of regulation in many countries and the fact that waterpipes use in cafes are cheaper and accessible to the youth (Kulak et al., 2018).

Regarding cannabis, 11.5% of Nursing students consumed cannabis (daily or occasionally), a much lower prevalence than found among general University students in Spain (40.5% stated that consumed cannabis the last month) (Arias-De la Torre et al., 2017). However, cannabis use has so far been very little investigated among nursing students as a specific group population. Thus, the majority of international and national studies have described cannabis use among University students as a whole population (Riou Franca et al., 2009, Suerken et al., 2014). To our knowledge, only one study in France has described cannabis use including nursing students, reporting that 22% of them are occasional occasionally users and 7% regular (Riou Franca et al., 2009). However, rates provided in this work were not broken into students-degree (Riou Franca et al., 2009). Although cannabis consumption among our sample is lower than reported by the general community of University students in Spain (Arias-De la Torre et al., 2017), this consumption is of concern due to future exemplary role that nursing students should provide to the rest of the society.

In the light of the results obtained, it is necessary to carry out early tobacco and cannabis cessation programs among nursing students due to taking into account that their prevalence and addiction consolidate throughout their university years. Thus, specific tailored cessation programs and campaigns targeted to this group are needed. Previous smoking cessation interventions addressed to health students have shown that multi-component interventions are effective (Vitzthum et al., 2013; Pardavila-Belio et al., 2015). These programs should include tobacco cessation treatments (nicotine replacement therapy, bupropion and/or varenicline) to prevent withdrawal symptoms and strategies for coping with stress. In addition, campaigns to promote non-smoker and smoker peer support are necessary because the lack of support has been detected as one of the main reasons of relapsing.

Nurses, and nursing students, have a clear role as models in tobacco control among the general population (Sarna et al., 2010); however, their attitude towards tobacco control is affected by their tobacco use as smokers so that they are less motivated to promote and assist in tobacco cessation (Chandrakumar and Adams, 2015; Tong et al., 2010). A recent review aimed to examine the association between nurses' tobacco consumption and their professional smoking cessation practices indicated that nurses who smoked are 13% less likely to always or frequently advise their patients to stop smoking and 25% less likely to arrange a follow-up visit either in person or over the telephone (Duaso et al., 2017). Some studies have indicated that nurses who smoke may feel conflicted about their ability to intervene (Radsma and Bottorff, 2009). For this reason, it is important to help nursing students quit during their years of nursing education.

6.1. Limitations and Strengths

Some limitations of this study should be noted. First, this is a cross-sectional self-reported survey; therefore, due to the nature of the design we are not able to reach direct causal conclusions about our results,

only associations. Besides, we did not validate tobacco use by using objective makers such as carbon monoxide testing. Second, this study relies on self-reported responses that might be affected by information bias, thus participant might have had a tendency to underreport any of their smoking habits; however, self-reported information has been demonstrated to be an adequate form of classifying smokers in observational studies (Wong et al., 2012). Third, our data did not include all the population of nursing students in Catalonia, as not all the students were present in classes at the time of the survey. However, we were able to reach nearly 60% of the students' population, and 98.5% of those who were invited to participate agreed to take part in the study. Fourth, due to the voluntary nature of the participation, we could have introduced a selection bias as those accepting could be the ones having more interest in smoking cessation practices; although 98.5% agreed to participate. And finally, reporting tobacco and cannabis use could be a sensible area in nursing students, so we cannot rule out certain self-complacency bias among students.

7. Conclusions

Tobacco and cannabis use is frequent among nursing students in Catalonia. Tobacco smoking prevalence among students who are in the last years of their nursing education is higher with a higher representation of daily smokers; in consequence, the higher the school year, the higher dependence to nicotine. Therefore, it is necessary to carry out early tobacco and cannabis cessation programs among young nursing students due to taking into account that their prevalence and addiction level may consolidate along their Nursing education. These programs should include psychological and pharmacological treatment, strategies to manage stress, and peer-support initiatives.

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Contributors

The authors of the manuscript were directly involved in the planning, analysis and writing of the paper, approved the final version being submitted, and accept full responsibility for the content of the paper.

CMM and EF conceived and designed the study, and OT, AF and KL contributed to the final design and implementation. MF, MM, AB and AL supervised the field work. CMM and YC were responsible for the analysis and interpretation of data. CM AND AB wrote the first draft of the manuscript. All authors read and approved the final version of the manuscript.

This is an original manuscript that has not been submitted to another journal.

Conflict of Interest

None.

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ARTÍCULO II

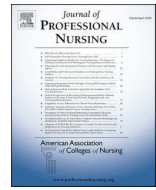
Determinants of participation in an online follow-up survey
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ABSTRACT

Introduction: Determinants of participation in longitudinal studies are crucial for prevent attrition.

Aim: To analyze determinants of participation in a follow-up survey among nursing students.

Materials and methods: Prospective longitudinal study among nursing students. We examined individual and contextual determinants of participation in an online follow-up survey (2018) among nursing students that had completed the paper-and-pencil questionnaire in baseline (2015–2016), using a multilevel logistic regression models.

Results: From the 4381 baseline participants, we identified 3440 eligible persons. The number of participants in the follow-up survey was 1252 (28.6%). Determinants of participation at follow-up were being female, aged ≤ 19 year-old in comparison with those older than 20, and being a never smoker compared with a current smoker.

Conclusions: Nursing students' participation at the online follow-up survey was moderate. Being female, aged ≤ 19 year-old, and being never smoker were determinants of participation. To boost participation in online surveys, some strategies such as adapted communications channels, the use of reminders and incentives should be included.

Introduction

The continuation of participation of the subjects over a prolonged period, thus avoiding attrition, is one of the biggest challenges in

longitudinal studies (Hunt & White, 1998). Attrition occurs when the subjects studied drop out of the research for a variety of reasons, which can include unwillingness to continue to participate in the research, impossibility to do it due to death or serious illness or difficulties in

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contacting original responders (Eysenbach, 2005). Hence, longitudinal studies should include a wide of strategies to minimize loss to follow-up participants due to these reasons (Hunt & White, 1998).

The current evidence reports different general strategies that might reduce attrition such as (a) to exclude from the baseline those participants who could be lost to follow-up (e.g., individuals who have limiting health problems, individuals who plan to change their address, etc.); (b) to collect more than one type of contact information (e.g., email account, mobile phone or contacts of relatives); and (c) to establish periodic contact with the participants through the use of reminders (García et al., 2003). Nevertheless, other determinants related to the study design and characteristics of the participants can also influence participation rates.

Concerning study design, the method of data collection (e.g., face-to-face interviews, telephone interviews, paper-and-pencil questionnaires, online surveys, etc.) is a key factor that significantly determines participation rates. Previous investigations have reported differences in participation rates between studies that used one method of data collection (single-mode studies) and those who used more than one method (mixed-mode studies) (The American Association for Public Opinion Research, 2016). In this regard, mixed-mode studies generally had highest participation rate compared with single-mode studies (Medway & Fulton, 2012). Furthermore, it is reported a stronger preference for completing a paper-and-pencil version of the questionnaire than online questionnaire or telephone interview (Fekete et al., 2015).

Participants' sociodemographic determinants such as gender, age, level of education, and income are also reported as important influencers of the study's participation and attrition in longitudinal research (Fekete et al., 2015; Forcey et al., 2014; Loxton et al., 2019; Mutagoma et al., 2018). In this line, several studies have described higher participation rates among individuals who are older aged, higher educated, and with higher income (Fekete et al., 2015; Forcey et al., 2014; Loxton et al., 2019; Mutagoma et al., 2018). Regarding gender, there is not clear consensus on its influence in participation rates, for instance, Fekete et al., reported higher participation among males while Mutagoma et al., showed that male gender was associated with attrition. In addition of these factors, previous studies suggest that some behaviors related to the survey topic, such as substance use, could disrupt initial participation and the follow-up of the individuals of the study. Hence, smokers participate at lower rates in cohort studies, compared with never and former smokers (Forcey et al., 2014; McDonald et al., 2017).

In the academic year 2015–2016, it was carried out the “Study of Tobacco Consumption in Nursing Students of the Universities of Catalonia (ECTEC study)”, a cross-sectional study targeting all students enrolled in a nursing degree program in the 15 schools in Catalonia (a region of Spain), to investigate students' consumption of tobacco products (Martínez et al., 2019). This survey was planned as a baseline assessment for further follow-up. Three years later, the cohort was followed-up (ECTEC-S study). The general aim of the ECTEC-S study was to assess the changes in tobacco product consumption, knowledge, training, and in attitudes towards smoking among nursing students. Additionally, we aimed to explore the determinants of participation at follow-up since online surveys are increasingly used in research, especially due to COVID-19, and this information could provide insights about what early strategies might be introduced to avoid attrition (Hunt & White, 1998). Therefore, our aim was to analyze determinants of participation in a follow-up survey among nursing students.

Materials and methods

Design and participants

The ECTEC-S is a prospective cohort study that started in 2015 in all nursing schools in Catalonia (Spain) and it is composed of participants from the baseline who provided their email account address, informed consent, and permission to be contacted in follow-up studies. In the

baseline, nursing students were invited to complete a paper-and-pencil questionnaire during class time at their nursing schools, obtaining a total of 4381 participants who filled in the questionnaire. Of them, 83.9% were female, 51.7% were 20–24 years old, 58.2% were first- and second-year students, 77.6% were born in Catalonia and 29.7% were current smokers at baseline. A detailed description of the baseline cross-sectional study is provided elsewhere (Martínez et al., 2019). Therefore, in this study we included all participants who (i) answered the baseline questionnaire, and (ii) provided informed consent to participate in a follow-up study.

Follow-up and data collection

After the baseline study, we sent an email to participants to share the main findings of the survey and thank them for their participation, through which we also have checked the operability of their email addresses in view of the forthcoming follow-up. Two years later, in July 2018, we contacted all eligible participants through a personalized email inviting them to fill in a follow-up online questionnaire that included a fact sheet about the ECTEC-S study and a link to the survey platform.

To enhance participation in the follow-up questionnaire, several strategies were included such as the use of communication channels adapted for young adults, extending the dissemination of the study through official entities, the use of reminders, and providing incentives. Our main strategy was to use communication channels adapted to the participants' characteristics since we used online tools (email, social media, and web) in the dissemination, recruitment, and data collection (Byaruhanga et al., 2019). Thus, in the dissemination and recruitment of the follow-up study we asked all the Catalan nursing schools and the four colleges of nursing in Catalonia to collaborate by sending two separate supporting emails. The first was sent by the deans of the nursing schools to third- and fourth-year students (who in the baseline study were first- and second-year students). The second email was sent by the colleges of nursing in Catalonia, addressed to nurses registered in 2016–2018 (who at the time of the baseline study were in their third or fourth year of studies at the schools of nursing). In this email, individuals were informed that they were going to receive an email from the ECTEC-S research team asking them to participate in the follow-up survey. Moreover, we used social media such as Twitter and our unit's blog to inform the nursing community about the follow-up study. The survey was active for 6 months (from July to December 2018) when eligible students had the opportunity to fill it in within a flexible period, as partial responses could be saved and continued later. Furthermore, participants were able to complete it from different devices, e.g., laptop, tablet and mobile phone. Other strategies to promote participation included sending periodic personalized reminders to email addresses of students who had not initiated the survey or who had initiated it but had not completed it. Up to six email reminders were sent including different formats of information, from text to video, and an infographic highlighting the importance of their participation: the first three reminders were sent every 15 days; the following reminders were sent in October of 2018 and the last in November of the same year. Finally, we launched a draw among participants to win a 300€ gift card for cultural activities to motivate the target students' response rate. After the survey was completed, an acknowledgement message was sent to each participant to promote interest in the study and facilitate participation in future waves. In addition, to assure future participation we asked for updated contact information including each participant's cell phone number and their current email address.

Instrument and variables

We used an online survey addressed to each eligible participant (The American Association for Public Opinion Research, 2016) launched through the LimeSurvey platform. It was based on the baseline

questionnaire that explores four dimensions: (1) tobacco products, electronic cigarettes, and cannabis use, (2) knowledge, (3) attitudes towards tobacco use, and (4) formal training received about tobacco control during the degree. Some questions were added to adapt the questionnaire to the participants who were already working as nurses. We included questions regarding their area of work, their self-reported perception of the compliance with smoke-free policies in the working organizations, and their self-reported implementation of the 5As smoking cessation intervention (Ask, Advise, Assess, Assist, and Arrange) to ascertain their level of activity in providing smoking cessation support to their smoking patients. The survey was first tested on 20 collaborating researchers from different areas and then on 50 participants in the study.

For this study the main *dependent variable* was participation in the follow-up survey.

The *independent variables* explored were: (a) *individual characteristics* at baseline including (1) sociodemographic information such as gender, age (≤ 19 years, 20–24 years, and ≥ 25 years), year of nursing studies (first, second, third, and fourth year) and (2) smoking status, which was classified into three categories (current smoker, former smoker, and never smoker) (Husten, 2009); and (b) *contextual characteristics* at baseline including: (1) type of nursing school in which they pursued

their studies (public, private with public funding, or private), (2) province of the nursing school (Barcelona, Girona, Tarragona, or Lleida), and (3) email type used by the student: university email, Gmail, Hotmail, and others (which included all other service providers).

Data analysis

We calculated the follow-up rate considering the individuals at baseline who completed the survey at follow-up, and we used the chi-square test to analyze differences in follow-up caused by independent variables. In addition, to assess the determinants of follow-up, we performed multilevel logistic regression models to obtain both crude (cOR) and adjusted (aOR) odds ratios and their 95% confidence intervals (CI). The fully adjusted models included all the independent variables. Significance was set at $p < 0.05$. All analyses were performed using the statistical package IBM SPSS statistics version 21.

Ethical considerations

The study protocol was approved by the Ethics Committee of the Hospital Universitari de Bellvitge (PR239/18). Only the participants who agreed to participate and signed the written consent that included

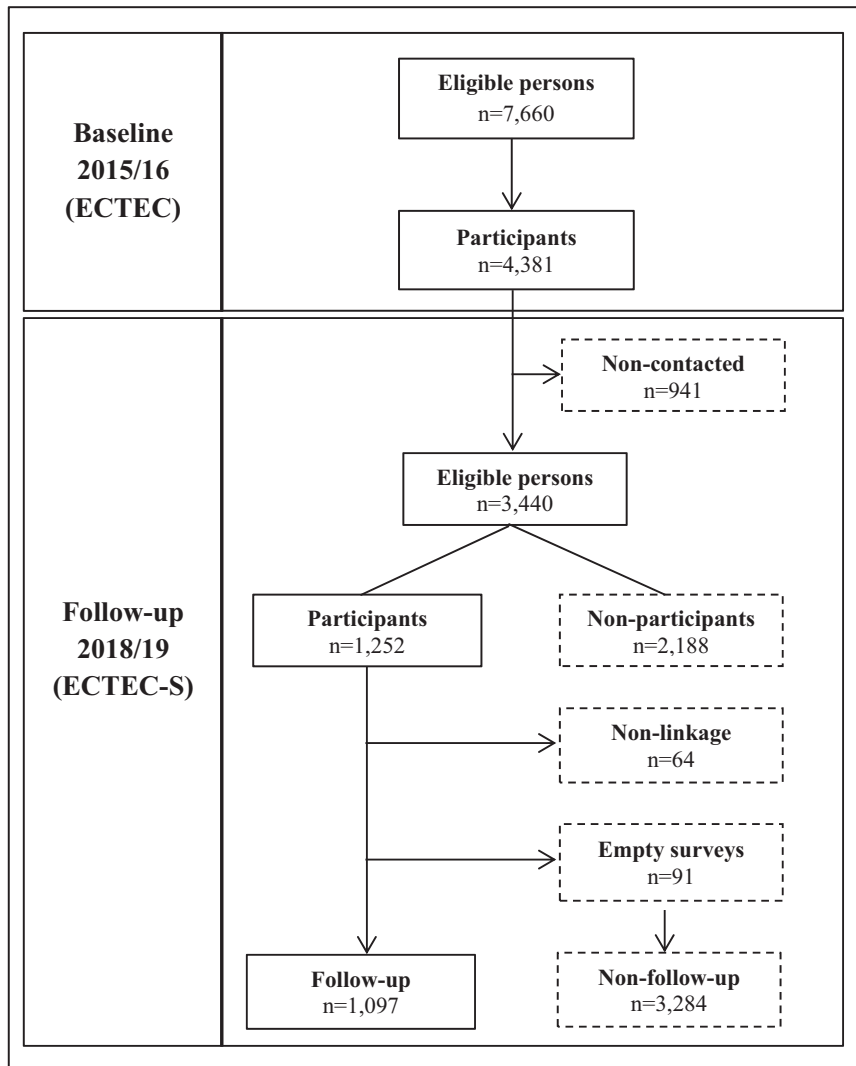


Fig. 1. Flow chart of students' participation in the baseline (2015–2016) and the follow-up (2018–2019).

the permission to re-contact them were included in the invitation to the follow-up study. Moreover, in the fact sheet sent in the first follow-up email, we explained the aims of the follow-up study and we asked again for their acceptance, participants who agreed to participate were sent the link to the follow-up questionnaire. The linkage between the baseline and the follow-up databases was conducted through a code embedded in the questionnaire that was assigned to each participant. This code was linked to the student’s email address that was used to send the invitation to each eligible participant and answers to the follow-up questionnaire were directly linked to this code, thus, all data were dissociated for data analysis. Additionally, in the quality review, we used the variable ‘nursing school’ to verify the correct linkage.

Results

From the overall 4381 participants of the baseline, 941 (21.5%) were identified as non-eligible: 274 did not complete the personal information in the baseline questionnaire or did not provide their email address, and for 667 the contact information was not operational at the moment of sending them the results of the baseline (Fig. 1). As a result, 3440 (78.5%) respondents to the baseline survey were invited to participate in the follow up. From them, a total of 1252 subjects filled in the survey (participation rate of 28.6%; 1252/4381), this represents the 36.4% from the invited persons (1252/3440); 1088 filled out the survey completely and 164 partially. From the current analyses we excluded 91 participants who initiated the survey but did not answer any questions and 64 other participants whose responses could not be linked to the baseline survey. Thus, the final participation rate of nursing students with complete information, taking into consideration the baseline participating number, was 25.0% (1097/4381).

Characteristics of nursing students followed-up and not followed-up

Table 1 displays the baseline characteristics of nursing students who participated in the follow-up survey: compared with the not followed-up individuals, the followed-up participants were more likely to be female ($p < 0.001$) and to be first- or second-year students at enrolment ($p < 0.001$), Table 1. The lower a student’s degree year, the higher their participation was in the follow-up group (p -value for trend < 0.05). Similarly, younger students (≤ 19 year-old) were more likely to participate in the follow-up ($p < 0.001$). Regarding smoking status, never smokers participated more in the follow-up compared with both current and former smokers ($p < 0.001$). No other relevant differences were found in other studied variables such as type and location of nursing school and email type used by the student.

Determinants of follow-up participation by independent variables at baseline

According to the multivariate analyses (Table 2), female nursing students were more likely to participate than males (aOR = 1.76; 95% CI: 1.40–2.15). Age was inversely associated with participation; those who were ≤ 19 year-old were more likely to participate than those ≥ 20 year-old (aOR = 1.43; 95% CI: 1.10–1.86). Never smokers were more likely to participate than current smokers (aOR = 1.44; 95% CI: 1.21–1.75). No differences were found related to either the type or province of the nursing school and email type used by the student.

Discussion

Our longitudinal study reports on determinants of participation in an online follow-up survey among nursing students, which, to our knowledge, have not been described in previous studies. The overall participation rate of nursing students with complete information at the

Table 1
Baseline characteristics of followed-up and non followed-up nursing students.

	All at baseline		Non followed-up		Followed-up		p-Value ^a
	n	%	n	%	n	%	
Overall	4381	100	3284	75.00	1097	25.00	
Gender							<0.001
Male	707	16.10	590	18.00	117	10.70	
Female	3674	83.90	2694	82.00	980	89.30	
Age group							<0.001
≤ 19 years	1364	31.40	955	29.30	409	37.60	
20–24 years	2246	51.70	1715	52.70	531	48.80	
≥ 25 years	733	16.90	585	18.00	148	13.60	
Year of degree							<0.001
First	1352	32	966	30.60	386	36.10	
Second	1108	26.20	823	26.10	285	26.70	
Third	949	22.50	736	23.30	213	19.90	
Fourth	813	19.30	628	19.90	185	17.30	
Type of nursing school							0.192
Public	1970	45	1496	45.60	474	43.20	
Private with public funding	841	19.20	636	19.40	205	18.70	
Private	1570	35.80	1152	35.10	418	38.10	
Location of the nursing school							0.217
Barcelona	3406	77.7	2533	77.13	873	79.6	
Girona	322	7.35	240	7.31	82	7.47	
Tarragona	384	8.77	301	9.17	83	7.57	
Lleida	269	6.14	210	6.39	59	5.38	
Email type used by student							0.564
University email	434	10.90	314	10.50	120	12.00	
Hotmail	1384	34.70	1034	34.60	350	35.00	
Gmail	2037	51.10	1537	51.50	500	50.00	
Other	3553	3.30	101	3.40	31	3.10	
Smoking status							<0.001
Smoker	1288	29.70	1011	31.10	277	25.40	
Former smoker	567	13.10	440	13.50	127	11.60	
Never smoker	2484	57.20	1797	55.30	687	63.00	

^a Chi-square test (non follow-up vs follow-up).

Table 2
Determinants of follow-up among a cohort of nursing students adjusted for baseline sociodemographic variables.

	Follow-up			
	Crude OR	95% CI	Adjusted OR ^a	95% CI
Gender				
Male	1	–	1	–
Female	1.83	(1.49–2.27)	1.76	(1.40–2.15)
Age group				
≤19 years	1.69	(1.37–2.10)	1.43	(1.10–1.86)
20–24 years	1.22	(1.00–1.50)	1.20	(0.95–1.50)
≥25 years	1	–	1	–
p for trend	0.408		0.916	
Year of degree				
First	1.36	(1.11–1.67)	1.17	(0.92–1.50)
Second	1.18	(0.95–1.45)	1.05	(0.82–1.33)
Third	0.98	(0.79–1.23)	0.98	(0.77–1.24)
Fourth	1	–	1	–
p for trend	0.001		0.460	
Type of nursing school				
Public	0.87	(0.75–1.02)	0.88	(0.71–1.08)
Private with public funding	0.89	(0.73–1.08)	0.94	(0.76–1.16)
Private	1	–	1	–
Location of the nursing school				
Barcelona	1	–	1	–
Girona	0.99	(0.76–1.29)	0.94	(0.69–1.29)
Tarragona	0.80	(0.62–1.30)	0.76	(0.56–1.02)
Lleida	0.82	(0.61–1.10)	0.82	(0.58–1.16)
Email type used by the student				
University email	1	–	1	–
Hotmail	0.89	(0.69–1.12)	0.92	(0.71–1.96)
Gmail	0.85	(0.67–1.08)	0.89	(0.69–1.14)
Other	0.80	(0.51–1.27)	0.88	(0.55–1.41)
Smoking status				
Smoker	1	–	1	–
Former smoker	1.05	(0.83–1.34)	1.13	(0.87–1.47)
Never smoker	1.40	(1.19–1.64)	1.44	(1.21–1.75)

^a Adjusted OR for gender, age group, year of degree, type of nursing school, location of the nursing school, email type used by student, and smoking status.

baseline and the follow-up survey was 25.0% (1097/4381). The determinants of participation in the follow-up were female gender, being in the youngest age group (≤19 year-old), and being a never smoker.

The participation rate reached is in line with previous single-mode studies that have used an online survey, with participation ranging from 5.0% to 52.9% (Emani et al., 2017; Loxton et al., 2019; Turner et al., 2009). Nevertheless, our participation rate is lower in comparison with mixed-mode studies, that have offered online survey as one of the modality options, and with other studies that have followed nursing students through a paper-and-pencil questionnaire. In both cases, their participation rates have reached up to 89.0% (Lai et al., 2008; Ohida et al., 2001; Rübsamen et al., 2017). As we have already appointed out, mixed-mode studies have greater participation in comparison with single-mode studies. Furthermore, participants may prefer a paper-and-pencil questionnaire than an online questionnaire (Fekete et al., 2015). These facts may explain the lower participation rate in our study since it is a single-mode one and we have used an online survey. This assumption is also supported by the fact that the participation rate reached in our baseline study, which also used a paper-and-pencil questionnaire, was 21% higher than the online follow-up survey.

Otherwise, some longitudinal studies related to tobacco or electronic cigarette use in other populations have reported a greater participation rate than our panel (67.0%–86.0%) (McDonald et al., 2017; Wills et al., 2016). Since nursing students are supposed to have more interest in health issues, we have expected that their participation rate in tobacco-related surveys was higher than other populations. In addition, in our study, 29.7% of students were current smokers at baseline which is

higher than the ones reported by other surveys conducted among nursing students in Europe in the last 5 years (Lehmann et al., 2014; Ordás et al., 2015). In this regard, several studies have agreed on the lower participation rate of current smokers in tobacco-related surveys (Forcey et al., 2014; McDonald et al., 2017). One of the most recurrent reasons cited to explain this loss in follow-up is the lower interest of smokers in the topic (Juranic et al., 2017). Moreover, the literature highlights that nurses who smoke feel the stigma and they are more reluctant to be asked about their attitudes, knowledge, and performance in tobacco control (McDonald et al., 2017). In addition to this, accentuated loss to follow-up of smokers' participants compared with studies in other populations, we consider that the differences in sociodemographic determinants of the participants of the cited studies such as age, quality of life, level of education, or social status could have influenced in this participation rate contrast.

Although the participation rate has long been used as one of the measures of survey quality, recent research has found that participation rate may not be as strongly associated with the quality or representativeness of the study as has been generally believed. The argument is based on the importance of the nonresponse bias (which is the degree to which sampled respondents differs from the survey population as a whole), that is central to evaluating the representativeness of a survey, rather than response rates (Keeter et al., 2006).

In our study, female nursing students were more likely to participate in the follow-up than males, even though, a strong bias towards female gender is present given the nature of this cohort of Spanish nursing students, who are mostly female gender (Fernandez et al., 2020). These results are in line with a similar cohort study conducted among US college students in Georgia in which tobacco-related questions were the main area of interest (McDonald et al., 2017). Despite the existence of heterogeneity in the evidence regarding the influence of gender on participation, it appears that female college students are more likely to participate in cohort studies related to tobacco control than males.

Our results regarding age are in concordance with those from Fekete et al. and Zazpe et al., who have reported a higher participation rate of younger individuals in online surveys than older individuals. In contrast, older individuals usually participate more in paper-and-pencil surveys (Zazpe et al., 2019). This could be explained by the fact that younger people are generally more accustomed than older people to digital devices. Additionally, for this panel, we thought that once the students graduate, they usually lose contact with the university. This means they may be less predisposed to participate in surveys, projects, activities, etc., as they do not receive updated information related to the university or nursing degree. However, this is a hypothesis and should be tested in future studies. In addition, in Spain, the culture of research is rarely present in nursing professionals and, as well, that checking one's email is not considered an essential task in the majority of the centers.

The most unexpected result in our study was the fact that we did not observe a statistically significant difference in participation according to the email type used by the student. Since the majority of the baseline participants had finished their nursing degree at the time of the follow-up, we expected they would not use university email and would use of their personal email accounts (Gmail, Hotmail, or other). However, it is likely that former students still use their university email accounts because they are either pursuing a postgraduate course or have redirected their university emails to a personal account. In any case, we were not able to monitor this aspect in our study.

We consider that the different strategies included in this study (the use of adapted communication channels, extending the dissemination of the study, the use of reminders, and incentives) were effective to boost a better participation rate. Nevertheless, we recommend future research expand these strategies through the use of SMS reminders, in addition of send them by email addresses, since other studies have proven their effectiveness for this purpose (Forcey et al., 2014). Another recommended strategy consists of tracking the reasons for attrition by either monitoring at each step whether or not the participants received the

emails, opened them, or read them or directly ask non-responders for the reasons of their rejection through a brief questionnaire attached with the invitation of the survey (García et al., 2003). These kinds of tracking may accurately facilitate determination of reasons for attrition and to carry out specific strategies in subsequent follow-ups. Finally, we expect that the use of small incentives for each participant could encourage participation rather than one draw to win one incentive since it will be a guaranteed gift for participants (Clendennen et al., 2019). We recommend that future cohort studies among college students take into consideration the reported determinants of participation to explore new strategies to increase participants' study adherence among male college students, those who are older and current smokers.

Additionally, we consider that college students should be educated to participate in research either by carrying out investigations or by being a study's subject. In the same manner, universities should provide the resources to maintain the contact with the alumni. Retaining the access of the university email address once they have graduated and creating alumni programs may be an effective strategy.

Limitations

Some limitations of this study must be considered. First, since the email addresses used to contact the students were the ones recorded in the baseline study (2015–2016), many of them may no longer have been in use at the time of the follow-up study (2018). Moreover, due to the platform used, it was not possible to ensure that all the students who were invited had received or read our emails and we cannot conclude that the reason for the non-participation of all eligible persons was a refusal to participate. Second, smoking status was a characteristic measured in the baseline study and it might have changed during the 3-year period. Third, we must consider that the data were collected through a self-reported survey and hence susceptible to recall bias. Fourth, the follow-up was carried out long after the baseline study, and the length of this period may have increased the attrition. Finally, the external validity of the study is limited to the nursing schools of Catalonia, although a priori these schools are not too different from other nursing schools in Spain or in Europe (Fernandez et al., 2020). These limitations are balanced by several strengths. This is the first study to explore individual and contextual determinants of participation among a cohort of Spanish nursing students. Moreover, the study included students from all nursing schools in Catalonia and it recruited 4381 students at baseline. In addition, we included the email type used by the student as one of the independent variables, which makes this study the first one to evaluate the influence of this variable on the follow-up participation rate. Finally, these findings are of importance in building a greater understanding of the factors that yield higher attrition in follow-up studies among college students, and specifically among nursing students.

Conclusions

About 28.6% of students that participated in the baseline filled in the online follow-up questionnaire 3 years after their recruitment. Although the rates of participation were modest, we obtained complete data from 1097 students. Determinants of participation at follow-up were being a female, ≤19 year-old, and a never smoker. Variables related to the nursing school affiliation (type and province) and the email type used by the student did not influence follow-up participation rates in this cohort. To boost participation in online surveys, some strategies such as adapted communications channels, the use of reminders, and incentives should be introduced.

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Declaration of competing interest

All the authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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ARTÍCULO III

Transitions in smoking status in nursing students: A
prospective longitudinal study

Transitions in smoking status in nursing students: A prospective longitudinal study

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Abstract

Aim: To describe transitions in smoking status and their determining factors among nursing students between baseline (2015–2016) and follow-up (2018–2019).

Design: Observational prospective longitudinal study of 4381 nursing students in Catalonia (Spain).

Methods: We examined transitions in smoking status from: (i) current smokers to recent quitters, (ii) never smokers to new smokers and (iii) former smokers to quitters who relapsed. We fitted logistic regression models to assess the predictors of quitting smoking.

Results: The proportion of current smokers decreased from 29.7% at baseline to 23.6% at follow-up, with a cumulative incidence rate of quitting of 28.3% during follow-up. Nondaily smokers were more likely to quit than daily smokers. Of those who

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were never smokers at baseline, 4.6% were smokers at follow-up, and 23.2% of former smokers at baseline had relapsed at follow-up.

Conclusions: Nondaily smokers were more likely to have quit smoking at follow-up among this cohort of nursing students. The early implementation of a comprehensive tobacco control program that includes tobacco-free campus policies, tobacco prevention interventions and cessation support during college years may decrease tobacco use among nursing students.

Impact: Nursing students' tobacco use is concerning, as they are the future workforce of nurses who have a key role in tobacco product use prevention and cessation. During college years, nursing students have a greater likelihood of experimenting with several smoking status changes as well as to consolidate smoking behaviors. This is the first longitudinal study to highlight the factors associated with quitting smoking among a cohort of Spanish nursing students. Being a nondaily smoker at baseline predicted quitting at follow-up. Our findings support the early implementation of a comprehensive tobacco control program that includes tobacco-free campus policies, tobacco prevention interventions and tobacco cessation support during college years to decrease tobacco product use prevalence among nursing students.

Reporting Method: We have adhered to STROBE guidelines. No Patient or Public Contribution. This observational study has not been registered.

KEYWORDS

longitudinal studies, nursing students, smoking, smoking cessation, tobacco use, young adult

1 | BACKGROUND

Young college students (18–24 years-old) are susceptible to being exposed to high-risk behaviors, such as tobacco use, which can lead from experimentation to regular consumption, this time being a crucial period of consolidation of tobacco behaviors (Berg et al., 2020; Cooke et al., 2016; Sutfin et al., 2022). Furthermore, emerging tobacco and nicotine products have altered college students' tobacco behaviors, leading to an increased prevalence of alternative tobacco product and polytobacco use among this group (American College Health Association, 2022; Haardörfer et al., 2016).

According to recent data, nearly 33% of college students are current users of a tobacco or nicotine product, including cigarettes, cigar/cigarillo/little cigar, electronic nicotine systems (ENDS) such as electronic cigarettes (e-cigarettes), water pipes (also known as hookah or shisha), heated tobacco products (HTPs) and smokeless tobacco (American College Health Association, 2022). Tobacco initiation occurs frequently between the ages of 14 and 25 through combustible products such as manufactured (MF) and roll-your-own (RYO) cigarettes, which are still the most common gateway to tobacco addiction among young people (Reitsma et al., 2021). However, in recent years, increasing use of alternative tobacco products such as e-cigarettes and water pipes has been observed among college students (American College Health Association, 2022). Furthermore, concurrent use of multiple tobacco products (polytobacco use) is increasing, while single tobacco product use is decreasing (Haardörfer et al., 2016).

Several known factors influence tobacco use among college students, either by increasing the probability of initiating and maintaining consumption or by hindering tobacco cessation. In this regard, being male, older, having a peer and/or family smoker, being exposed to secondhand smoke (SHS) and having high scores of depression, anxiety and/or stress are all associated with a greater likelihood of being a tobacco user (Berg et al., 2020; Cooke et al., 2016; Creamer et al., 2018). Moreover, the use of alternative tobacco products predicts cigarette initiation, as well as the inverse associated exits (Creamer et al., 2018; Sutfin et al., 2022). Furthermore, high nicotine dependence, high perceived addiction and low self-efficacy to quit are significant barriers to stopping smoking (Pardavila-Belio et al., 2019).

The current evidence has widely demonstrated the prevalence and changes in tobacco use and its predictors among college students globally. Nevertheless, there is a scarcity of longitudinal studies that have focused on different college fields, such as health science degrees, even though they have a key role in tobacco control. This is especially true for nursing students, who in the future will be role models and will be expected to perform smoking prevention and cessation interventions. Although previous studies among Spanish nursing students have reported changes in tobacco use prevalence and smoking status (Ordás et al., 2015), the predictors of smoking status changes have not been addressed. Furthermore, cohort studies that encompass the use of different tobacco products, e-cigarettes and cannabis among this group are uncommon in Europe. Thus, we analyzed data from the "Study of Tobacco Consumption in Nursing Students of the Universities of Catalonia (ECTEC)," a cohort study initiated in the

academic year 2015–2016 (Martínez et al., 2019) to describe transitions in smoking status and their determining factors among nursing students between baseline (2015–2016) and follow-up (2018–2019).

2 | METHODS

2.1 | Design

We employed an observational prospective longitudinal study design to follow a cohort of nursing students from all nursing schools in Catalonia (Spain) between the academic years 2015–2016 and 2018–2019.

2.2 | Participants and recruitment

At baseline, we have instructed all nursing students from all nursing schools of Catalonia (Spain) to complete a paper-and-pencil questionnaire during class time at their nursing schools. All participants gave written informed consent to take part in the baseline study and, optionally, they provided their email account addresses and permission to be contacted in follow-up studies. Details of the cross-sectional baseline survey are available (Martínez et al., 2019).

At follow-up, we included all participants who answered the baseline questionnaire, provided informed consent to be followed up, and had valid contact information. In 2018, we invited the participants by email to fill in an online follow-up questionnaire. For this study, we included the participants that completed the baseline and follow-up questions regarding their smoking status.

2.3 | Instrument and outcome measures

At baseline, we used a self-administered questionnaire that explored: (i) the use of tobacco products, e-cigarettes and cannabis, (ii) knowledge, attitudes and formal training about tobacco control and (iii) compliance with tobacco-free policies. The baseline paper-and-pencil questionnaire was based on the Global Health Professional Survey (GHPS). At follow-up, we used an online survey based on the baseline questionnaire that was launched through the LimeSurvey platform. The follow-up questionnaire included 11 questions regarding sociodemographic characteristics and 19 about the use of tobacco products, e-cigarettes and cannabis (7 for all participants, 8 for those who were current smokers and 4 for former smokers). Prior to administration, the follow-up questionnaire was piloted, first with 20 collaborating researchers from different areas and then with 50 study participants (see details in Laroussy et al., 2022).

In the baseline and follow-up surveys, we asked about the participants' use of different tobacco products (MF and RYO cigarettes, cigars/cigarillos/little cigars and water pipes), e-cigarettes, HTPs and cannabis, through the question: Of the following statements, indicate which one best describes your behavior with respect to (name

of the product). A total of seven questions were formulated, one for each product. The possible answers were: *I currently smoke every day (at least once a day)*, *I currently smoke nondaily (not every day)*, *I don't smoke now, but I used to smoke every day (at least once a day)*, *I don't smoke now, but I used to smoke nondaily (not every day)* and *I have never smoked*. Then, we classified participants into three categories according to the current Centers for Disease Control and Prevention and *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* definitions of smoking behaviors: (i) current smoker, a person who uses combustible tobacco products (MF and/or RYO cigarettes) at the moment of the survey or had quit less than 6 months ago; (ii) former smoker, a person who had smoked MF and/or RYO cigarettes and had remained abstinent for at least 6 months and (iii) never smoker, a person who has never smoked MF and/or RYO cigarettes. Among current smokers, we differentiate between a daily smoker (a person who smokes every day) and a nondaily smoker (a person who smokes regularly but not every day, whatever the quantity or the frequency).

Current smokers were asked about their age of initiation (classified into <17 or ≥17); the reason/s why they initiated smoking (*because my friends/classmates smoked, because one of my family members smoked, because my teachers smoked, to experiment with new experiences, because it is trendy, to feel older, to meet people or to flirt*, and other); the reason/s why they currently smoke (*for weight control, for reducing stress/relaxing, for socializing, because my friend/family smokes, because it is trendy, for pleasure, because I could not quit*, and other); the number of cigarettes smoked per day (CPD) or per week (classified into <10, 10–19, or ≥20); how long it takes to smoke their first cigarette from the moment they wake up (5 min or less, between 6 and 30 min, between 31 and 60 min or more than 60 min); if they have seriously tried to quit smoking in the last year (yes or no), the number of quit attempts of at least 24 h in the last year (1 or ≥2) and if they have the intention to quit or cut back their consumption in the following year (yes or no). We used the data of the number of CPD and time to first cigarette (TFC) to calculate the heaviness of smoking index (HSI) using the following scoring for CPD: <10 = 1 point (p), 10–19 = 2 p, or ≥20 = 3 p and TFC: 5 min or less = 3 p, between 6 and 30 min = 2 p, between 31 and 60 min = 1 p or more than 60 min = 0 p. We have summed the scores from both variables to obtain a score between 0 and 6; and considered an HSI from 0 to 2 as low nicotine dependence, 3–4 as medium and 5–6 as high (Chabrol et al., 2005).

Former smokers were asked about their age of initiation (classified into <17 or ≥17); their age of cessation (classified into <19 or ≥19); the reason/s why they quit smoking (*to protect my health, on the advice of a health professional, to set an example, under pressure from family or friends, to save money, because it is important for my role as a nurse, or other reasons*); and if they used any treatment during the quitting process (nicotine gum, lozenges, mouth spray or patches, prescription drugs [bupropion, varenicline or others], professional support [doctor, nurse, psychologist or others], acupuncture/homeopathy/hypnosis, others or they have not used any treatment).

The main dependent variable was transition in smoking status. Smoking transitions were defined according to the changes in tobacco use between baseline and follow-up: (i) participants who were

current smokers at baseline and transitioned to former smokers at follow-up were classified as *recent quitters*; (ii) participants who were never smokers at baseline and transitioned to current smokers at follow-up were classified as *new smokers*; (iii) participants who were former smokers at baseline and transitioned to current smokers at follow-up were classified as *quitters who relapsed*. Participants who had not changed their smoking status were defined as *continued as smokers*, *continued as never smokers* and *continued as former smokers*.

At baseline, we collected sociodemographic characteristics such as sex, age (classified into ≤ 19 years, 20–24 years or ≥ 25 years), year in nursing school (first, second, third or fourth year), place of birth (Catalonia or outside of Catalonia), location of nursing school (Barcelona or outside of Barcelona) and type of nursing school (public, private with public funding or private). At follow-up, we explored whether they had finished the nursing degree (yes or no); occupation at follow-up (nursing student, nurse or other); for those who were still in nursing school, their year in nursing school (second, third or fourth); for those who were working as nurses, we asked their work area (hospital, primary care or other) and the type of institution (public, private with public funding or private); if they were living with family or were independent, their monthly income ($\leq 1500\text{€}$, 1501€ – 3000€ or $\geq 3001\text{€}$) and their marital status (single, married/cohabiting, divorced or widowed). In addition, we also used the characteristics related to the pattern of tobacco use among current and former smokers at baseline as independent variables.

2.4 | Validity, reliability and rigor of the instrument

The content validity of the instrument of measurement used in this study (questionnaire) was strengthened by different pilot tests conducted before the baseline study and before the follow-up study. All details about the procedure of data collection and the characteristics of the survey have been described earlier and are explained elsewhere (Laroussy et al., 2022).

To ensure reliability, a rigorous quality analysis of the data was conducted. In this step, we excluded invalid surveys as well as participants with incomplete information. The number of excluded invalid surveys is detailed in Section 3.

2.5 | Data analysis

For bivariate analysis, we used a Chi-square test for qualitative variables. In addition, to analyze the predictors of quitting, we performed logistic regression models to obtain both crude and adjusted odds ratios (aORs), and their 95% confidence interval (CI). The full-adjusted models only included the following independent variables: sex, baseline age and baseline smoking status. The variables smoking for reducing stress/relaxing, number of CPD, HSI and thinking about cutting back consumption were excluded from the model due to their association with the baseline smoking status (number of CPD and HSI) or their small sample size (smoking for reducing stress/relaxing and thinking about cutting back consumption). Predictors of initiating smoking or relapsing were not assessed due to the small sample sizes in both subgroups. Furthermore, we calculated the cumulative rates of quitting, starting and relapsing, stratified by occupation at follow-up, to compare the participants who were still nursing students with those who had graduated and were working as nurses at follow-up. Significance was set at $p < .05$. All statistical analyses were performed using IBM SPSS statistics version 25.

2.6 | Ethical considerations

The study protocol was approved by the Ethics Committee of the Hospital Universitari de Bellvitge (PR239/18). Written informed consent was obtained from all participants at both baseline and follow-up.

	Current smoker at follow-up	Former smoker at follow-up	Never smoker at follow-up
Current smoker at baseline	Continued as current smoker (n=198)	Recent quitter (n=78)	-
Former smoker at baseline	Quitter who relapsed (n=29)	Continued as former smoker (n=96)	-
Never smoker at baseline	New smoker (n=29)	New smoker and recent quitter* (n=58)	Continued as never smoker (n=597)

*These participants reported being never smokers at baseline and former smokers at follow-up. Thus, we concluded that they both started smoking and quit smoking between baseline and follow-up.

FIGURE 1 Smoking status transitions among the cohort of nursing students between baseline (2015–16) and follow-up (2018–19). *These participants reported being never smokers at baseline and former smokers at follow-up. Thus, we concluded that they both started smoking and quit smoking between baseline and follow-up.

TABLE 1 Tobacco use of the followed participants according to sociodemographic characteristics at baseline (2015–2016) and follow-up (2018–2019).

	Current smokers								
	All			Daily smokers			Nondaily smokers		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Overall	256	23.6	(21.1–26.2)	163	15.0	(13.0–17.2)	93	8.6	(7.0–10.3)
Characteristics at baseline									
Sex									
Male	30	26.1	(18.7–34.6)	17	14.8	(9.2–22.1)	13	11.3	(6.5–18.0)
Female	226	23.3	(20.7–26.0)	146	15.1	(12.9–17.4)	80	8.2	(6.6–10.1)
Age									
≤19 years	79	19.6	(15.9–23.6)	40	9.9	(7.3–13.1)	39	9.7	(7.1–12.8)
20–24 years	135	25.6	(22.0–29.5)	88	16.7	(13.7–20.1)	47	8.9	(6.7–11.6)
≥25 years	39	26.9	(20.2–34.5)	34	23.4	(17.1–30.8)	5	3.5	(1.3–7.4)
Year in nursing school									
First	90	23.4	(19.4–27.9)	55	14.3	(11.1–18.1)	35	9.1	(6.5–12.3)
Second	60	21.4	(16.9–26.5)	37	13.2	(9.6–17.6)	23	8.2	(5.4–11.9)
Third	57	27.2	(21.5–33.4)	39	18.6	(13.8–24.2)	18	8.6	(5.3–12.9)
Fourth	44	23.9	(18.2–30.5)	30	16.3	(11.5–22.1)	14	7.6	(4.4–12.1)
Place of birth									
Catalonia	218	25.3	(22.5–28.3)	142	16.5	(14.1–19.1)	76	8.8	(7.1–10.9)
Outside of Catalonia	33	16.5	(11.9–22.1)	19	9.5	(6.0–14.1)	14	7.0	(4.1–11.2)
Location of nursing school									
Barcelona	222	25.7	(22.9–28.7)	143	16.6	(14.2–19.1)	79	9.1	(7.4–11.2)
Outside of Barcelona	34	15.4	(11.1–20.6)	20	9.0	(5.8–13.4)	14	6.4	(3.7–10.1)
Type of nursing school									
Public	82	17.5	(14.3–21.1)	48	10.2	(7.7–13.2)	34	7.3	(5.2–9.9)
Private with public funding	66	32.6	(26.4–39.2)	47	23.2	(17.8–29.3)	19	9.4	(5.9–13.9)
Private	108	26.2	(22.1–30.5)	68	16.5	(13.1–20.3)	40	9.7	(7.1–12.8)
Characteristics at follow-up									
Has finished degree									
Yes	149	23.0	(19.9–26.4)	97	15.0	(12.4–17.9)	52	8.0	(6.1–10.3)
No	107	24.4	(20.6–28.6)	66	15.1	(12.0–18.6)	41	9.3	(6.9–12.4)
Occupation									
Nursing student	94	23.0	(19.2–27.3)	60	14.7	(11.5–18.4)	34	8.3	(5.9–11.3)
Nurse	149	23.0	(19.9–26.4)	97	15.0	(12.4–17.9)	52	8.0	(6.1–10.3)
Other	13	43.3	(26.9–61.0)	6	20.0	(8.8–36.7)	7	23.3	(11.1–40.4)
Year in nursing school (students)									
Second or third	22	21.8	(14.6–30.6)	12	11.9	(6.7–19.2)	10	9.9	(5.2–16.9)
Fourth	72	23.5	(19.0–28.4)	48	15.7	(11.9–20.0)	24	7.8	(5.2–11.2)
Work area (nurses)									
Hospital	111	24.2	(20.5–28.3)	77	16.8	(13.6–20.4)	34	7.4	(5.3–10.1)
Other	24	20.9	(14.2–29.0)	13	11.3	(6.5–18.0)	11	9.6	(5.2–15.9)
Type of institution they work in (nurses)									
Public	70	24.8	(20.1–30.1)	46	16.3	(12.4–21.0)	24	8.5	(5.7–12.2)
Other	65	22.3	(17.8–27.4)	44	15.1	(11.4–19.6)	21	7.2	(4.7–10.6)

p-value ^a	Non smokers						p-value ^b
	Never smokers			Former smokers			
	n	%	95% CI	n	%	95% CI	
	619	57.0	(54.1–60.0)	210	19.4	(17.1–21.8)	
.396	58	50.4	(41.4–59.5)	27	23.5	(16.5–31.8)	.293
<.001	561	57.8	(54.7–60.9)	183	18.9	(16.5–21.4)	<.001
	260	64.3	(59.6–68.9)	65	16.1	(12.8–19.9)	
	298	56.5	(52.3–60.7)	94	17.9	(14.7–21.3)	
	57	39.3	(31.6–47.4)	49	33.8	(26.5–41.8)	
.733	220	57.3	(52.3–62.2)	74	19.3	(15.6–23.4)	.862
	165	58.9	(53.1–64.6)	55	19.7	(15.3–24.6)	
	116	55.2	(48.5–61.9)	37	17.6	(12.9–23.2)	
	102	55.4	(48.2–62.5)	38	20.7	(15.3–26.9)	
.399	487	56.6	(53.3–59.9)	155	18.1	(15.6–20.7)	.011
	118	59.0	(52.1–65.6)	49	24.5	(18.9–30.8)	
.528	479	55.4	(52.1–58.7)	163	18.9	(16.4–21.6)	.006
	140	63.3	(56.9–69.5)	47	21.3	(16.3–27.0)	
.275	298	63.5	(59.1–67.8)	89	19.0	(15.6–22.7)	<.001
	102	50.2	(43.4–57.1)	35	17.2	(12.5–22.9)	
	219	53.0	(48.2–57.8)	86	20.8	(17.1–24.9)	
.575	373	57.7	(53.8–61.4)	125	19.3	(16.4–22.5)	.853
	246	56.2	(51.5–60.8)	85	19.4	(15.9–23.3)	
.395	236	57.8	(53.0–62.6)	78	19.2	(15.5–23.1)	.078
	373	57.7	(53.8–61.4)	125	19.3	(16.4–22.5)	
	10	33.3	(18.6–51.1)	7	23.4	(11.1–40.4)	
.300	60	59.4	(49.7–68.6)	19	18.8	(12.1–27.3)	.925
	176	57.3	(51.7–62.8)	59	19.2	(15.1–23.9)	
.152	259	56.6	(52.0–61.0)	88	19.2	(15.8–23.0)	.501
	82	62.6	(53.5–71.1)	19	16.5	(10.6–24.1)	
.808	163	57.8	(52.0–63.5)	49	17.4	(13.3–22.1)	.645
	168	57.7	(52.0–63.3)	58	20.0	(15.7–24.8)	

TABLE 1 (Continued)

	Current smokers								
	All			Daily smokers			Nondaily smokers		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Living									
With family	148	21.4	(18.5–24.6)	83	12.0	(9.7–14.6)	65	9.4	(7.4–11.7)
Independent	92	27.7	(23.1–32.7)	70	21.1	(17.0–25.7)	22	6.6	(4.3–9.7)
Monthly income									
≤1500€	68	24.5	(19.7–29.8)	50	18.0	(13.8–22.8)	18	6.5	(4.0–9.8)
1501€–3000€	72	20.9	(16.8–25.4)	46	13.3	(10.1–17.2)	26	7.6	(5.1–10.7)
≥3001€	57	25.9	(20.5–32.0)	34	15.4	(11.1–20.7)	23	10.5	(6.9–15.0)
Does not know/Does not answer	59	24.4	(19.3–30.1)	33	13.7	(9.8–18.4)	26	10.7	(7.3–15.1)
Marital status									
Single	175	22.0	(19.2–25)	101	12.7	(10.5–15.1)	74	9.3	(7.4–11.5)
Other	63	28.1	(22.5–34.3)	50	22.3	(17.2–28.1)	13	5.8	(3.3–9.4)

Note: Significant values are highlighted in bold.

Abbreviation: CI, confidence interval.

^aChi-square test (daily vs. nondaily smokers).

^bChi-square test (current smokers vs. never smokers vs. former smokers).

3 | RESULTS

3.1 | Description of the sample

From the overall 4381 participants of the baseline study, we identified 3440 (78.5%) people who were eligible for follow-up (who agreed to participate in the follow-up and provided their email address). Of them, 1252 (28.6%) participated in the follow-up. For the current analysis, we excluded 103 participants who did not complete the key questions in the follow-up survey and 64 participants whose response could not be linked to their response for the baseline survey. Thus, we studied 1085 participants (24.8%) with complete information at baseline and follow-up.

Overall, 89.4% of the followed participants were female and 49.0% were aged 20–24. Comparing the three age groups, the proportion of women was higher among participants ≤19 years old, and the proportion of men was higher among those ≥25 years old (both $p < .01$). Regarding their occupation at follow-up, 408 were still nursing students and 647 had graduated. Among nursing students, we observed a higher proportion of females in the second or third year of school and a higher proportion of males in the fourth year (both $p < .05$) (Table S1).

3.2 | Changes in smoking status

Figure 1 presents the main smoking transitions that nursing students experienced during the follow-up period. The prevalence of current

smokers decreased significantly between baseline (29.7%, 95% CI 27.2–32.2) and follow-up (23.6%, 95% CI 21.1–26.2). Consequently, there was an increased prevalence of former smokers (from 13.1%, 95% CI 11.3–14.9, to 19.4%, 95% CI 17.1–21.8). Among smokers, the percentage of nondaily smokers was high at both baseline (38.0%) and follow-up (36.4%). The proportion of never smokers showed almost no change between baseline and follow-up (Table 1).

Current smoking (daily and nondaily together) and former smoking increased by age group at follow-up ($p < .001$) with no differences by year in nursing school. Current smoking at follow-up was more common among students who were born in Catalonia compared with those who were born outside of Catalonia (25.3%, 16.5%, respectively, $p < .05$), those who were enrolled in universities in Barcelona compared with those from universities outside of Barcelona (25.7%, 15.4%, respectively, $p < .05$), in private nursing schools with public funding compared with those from public or private schools (32.6%, 17.5%, 26.2%, respectively, $p < .001$), those who were independent when compared with those living with their families (27.7%, 21.4%, $p < .001$) and those who had a marital status other than singles (28.1%, 22.0, $p < .001$). Former smoking at follow-up was more frequent among participants who were born outside of Catalonia than those who were born in Catalonia (24.5%, 18.1%, respectively $p < .05$), those who were independent, compared with those who were living with their family (24.7%, 17.2%, respectively, $p < .001$) and with another marital status, compared with those who were single (31.7%, 16.5%, respectively, $p < .001$).

Among current smokers, the proportion of nondaily smokers was higher among younger participants, whereas the proportion of daily smokers was higher among older ones ($p < .001$). Daily smoking was more common among independent students and among those

p-value ^a	Non smokers						p-value ^b
	Never smokers			Former smokers			
	n	%	95% CI	n	%	95% CI	
.002	425	61.4	(57.7–65.0)	119	17.2	(14.5–20.1)	<.001
	158	47.6	(42.3–53.0)	82	24.7	(20.3–29.5)	
.188	157	56.4	(50.6–62.2)	53	19.1	(14.8–24.0)	.659
	198	57.4	(52.1–62.5)	75	21.7	(17.6–26.3)	
	121	55.0	(48.4–61.5)	42	19.1	(14.3–24.7)	
	143	59.1	(52.8–65.1)	40	16.5	(12.3–21.6)	
.002	490	61.5	(58.1–64.9)	131	16.5	(14.0–19.2)	<.001
	90	40.2	(33.9–46.7)	71	31.7	(25.9–38.0)	

with another marital status, compared with those who were living with their families and with those who were single (both $p < .002$). Nondaily smoking was more frequent among students who were living with their families and were single, compared with those who were independent and had another marital status (both $p < .002$).

In contrast to participants' tobacco use pattern at baseline, most male smokers at follow-up initiated smoking at ≥ 17 year-old, whereas most females initiated at < 17 year-old ($p = .008$). Regarding the type of product, tobacco users mostly used combustible tobacco (MF cigarettes 66.4% and RYO cigarettes 47.0% at baseline, increasing to 79.7% and 57.1% at follow-up, respectively, Table 2). The proportion of RYO cigarette and water pipe users was higher among the youngest participants, whereas the proportion of MF cigarette users was higher among the oldest participants ($p < .05$). The use of alternative products increased: water pipes from 10.0% to 16.1%, e-cigarettes from 0.4% to 1.6% and cannabis from 11.5% to 15.0%. While the use of HTPs was negligible at baseline, it had increased at follow-up, and it was higher in men (6.7%) than in women (1.3%) ($p < .05$). At follow-up, the number of consumed CPD and nicotine dependence increased by age group at follow-up ($p \leq .001$). A greater proportion of males than females reported quit attempts in the last year (48.1% vs. 27.6%, $p < .05$). Finally, the proportion of smokers who had the intention to quit at follow-up increased by age group (≤ 19 year-old: 71.4%, 20–24 year-old: 82.4% and ≥ 25 year-old: 100%, $p = .002$).

3.3 | Predictors of smoking transition

As shown in Table 3, the cumulative incidence of quitting was 28.3% at follow-up. The only predictor of quitting was being a nondaily

smoker compared to a daily smoker (aOR = 3.86, 95% CI 2.19–6.82). The proportion of recent quitters who reported smoking for reducing stress or relaxing at baseline was lower than those who continued smoking at follow-up ($p < .006$). As well, the proportion of recent quitters was higher among participants who, at baseline, had a low cigarette consumption (< 10 CPD), compared with those who consumed ≥ 10 CPD ($p < .001$), those who had low nicotine dependence, compared with those who had medium and high dependence ($p = .036$) and those who had no intention to cut back consumption, compared with those who had this intention ($p = .026$). There were no differences in the factors linked to quitting at follow-up between participants who were still students and those who had graduated.

Among never smokers at baseline, the cumulative incidence of smoking initiation at follow-up was 4.6% (Table 4). There were no significant differences in baseline characteristics among new smokers. The small number of new smokers ($n = 29$) prevented further analysis through logistic regression modelling. Stratified analysis by occupation at follow-up showed no significant differences. Most new smokers used MF cigarettes exclusively (48.3%) or used both MF and RYO cigarettes (34.5%). The overall prevalence of water pipe and cannabis use among this group was 27.6% and 24.1%, respectively.

Among former smokers at baseline, the cumulative incidence of relapse was 23.2% at follow-up (Table 5). There were no differences regarding the baseline characteristics. Due to the small number of quitters who relapsed ($n = 29$), we could not perform logistic regression modelling. Most quitters who relapsed consumed MF (44.8%) or both MF and RYO cigarettes (37.9%). The overall prevalence of water pipe and cannabis use was 20.7% and 13.8%, respectively.

TABLE 2 Tobacco use pattern among current smokers at follow-up (2018–2019).

	All			Sex					
				Male			Female		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Overall	256	100		30	100		226	100	
Age of initiation									
<17 years	125	57.1	(50.5–63.5)	9	33.3	(17.9–52.1)	116	60.4	(53.4–67.1)
≥17 years	94	42.9	(36.5–49.5)	18	66.7	(47.9–82.1)	76	39.6	(32.9–46.6)
Pattern of smoking									
Daily	163	63.7	(57.7–69.4)	17	58.6	(40.6–75.0)	146	66.7	(60.2–72.7)
Nondaily	93	36.3	(30.6–42.3)	12	41.4	(25.0–59.4)	73	33.3	(27.3–39.8)
Type of tobacco product consumed									
Manufactured cigarettes	204	79.7	(74.4–84.3)	22	73.3	(55.9–86.5)	182	80.5	(75.0–85.3)
Roll-your-own cigarettes	145	57.1	(50.9–63.1)	18	60.0	(42.2–76.0)	127	56.7	(50.2–63.1)
Cigars, cigarillos, little cigars	5	2.0	(0.8–4.3)	1	3.3	(0.4–14.5)	4	1.8	(0.6–4.2)
Electronic cigarettes	4	1.6	(0.5–3.7)	1	3.3	(0.4–14.5)	3	1.3	(0.4–3.5)
Water pipes	41	16.1	(12.0–21.0)	8	26.7	(13.5–44.1)	33	14.7	(10.6–19.8)
IQOS	5	2.0	(0.8–4.3)	2	6.7	(1.4–19.7)	3	1.3	(0.4–3.5)
Cannabis	38	15.0	(11.0–19.7)	5	16.7	(6.7–32.7)	33	14.7	(10.6–19.8)
Number of cigarettes per day									
<10	170	68.5	(62.6–74.1)	21	72.4	(54.6–86.0)	149	68.0	(61.7–73.9)
10–19	59	23.8	(18.8–29.4)	7	24.1	(11.5–41.6)	52	23.7	(18.5–29.7)
≥20	19	7.7	(4.8–11.5)	1	3.4	(0.4–15.0)	18	8.2	(5.1–12.4)
Heaviness of smoking index									
Low (0–2)	182	83.9	(78.5–88.3)	23	88.5	(72.3–96.6)	159	83.2	(77.5–88.0)
Medium and high (3–6)	35	16.1	(11.7–21.5)	3	11.5	(3.4–27.7)	32	16.8	(12.0–22.5)
Quit attempts in the last year									
Yes	66	30.1	(24.4–36.4)	13	48.1	(30.3–66.4)	53	27.6	(21.6–34.2)
No	153	69.9	(63.6–75.6)	14	51.9	(33.6–69.7)	139	72.4	(65.8–78.4)
Number of quit attempts									
1	24	36.4	(25.5–48.4)	7	53.8	(28.3–77.9)	17	32.1	(20.7–45.3)
≥2	42	63.6	(51.6–74.5)	6	46.2	(22.1–71.7)	36	67.9	(54.7–79.3)
Are you seriously thinking about quitting now?									
Yes	179	81.7	(76.2–86.4)	23	85.2	(68.5–94.8)	156	81.3	(75.3–86.3)
No	40	18.3	(13.6–23.8)	4	14.8	(5.2–31.5)	36	18.8	(13.7–24.7)
Are you thinking about cutting back consumption?									
Yes	140	63.9	(57.4–70.1)	17	63.0	(44.2–79.1)	123	64.1	(57.1–70.6)
No	79	36.1	(29.9–42.6)	10	37.0	(20.9–55.8)	69	35.9	(29.4–42.9)

Note: Significant values are highlighted in bold.

Abbreviation: CI, confidence interval.

^aChi-square test (male vs. female).

^bChi-square test (≤19 vs. 20–24 vs. ≥25).

p-value ^a	Baseline age group (years)									p-value ^b
	≤19			20–24			≥ 25			
	n	%	95% CI	n	%	95% CI	n	%	95% CI	
	79	100		135	100		39	100		
.008										.820
	34	54.0	(41.7–65.9)	70	58.8	(49.9–67.4)	20	57.1	(40.7–72.4)	
	29	46.0	(34.1–58.3)	49	41.2	(32.6–50.1)	15	42.9	(27.6–59.3)	
.391										.001
	40	53.3	(42.1–64.3)	88	67.2	(58.8–74.8)	34	87.2	(74.2–94.9)	
	35	46.7	(35.7–57.9)	43	32.8	(25.2–41.2)	5	12.8	(5.1–25.8)	
.357	54	68.4	(57.6–77.8)	114	84.4	(77.6–89.8)	34	87.2	(74.2–94.9)	.008
.731	55	69.6	(58.9–78.9)	70	52.6	(44.2–61.0)	19	48.7	(33.6–64.0)	.026
.567	3	3.8	(1.1–9.8)	2	1.5	(0.3–4.7)	-	-	-	.321
.410	1	1.3	(0.1–5.8)	3	2.3	(0.6–5.9)	-	-	-	.589
.095	21	26.6	(17.8–37.0)	19	14.3	(9.1–21)	1	2.6	(0.3–11.4)	.003
.049	2	2.5	(0.5–7.9)	3	2.3	(0.6–5.9)	-	-	-	.619
.780	15	19.0	(11.5–28.7)	21	15.8	(10.4–22.7)	1	2.6	(0.3–11.4)	.054
.659										<.001
	61	81.3	(71.4–88.9)	90	68.7	(60.4–76.2)	16	41.0	(26.7–56.6)	
	9	12.0	(6.1–20.8)	33	25.2	(18.4–33.1)	17	43.6	(28.9–59.1)	
	5	6.7	(2.6–14.0)	8	6.1	(2.9–11.2)	6	15.4	(6.7–29)	
.776										.001
	56	90.3	(81.1–95.9)	102	86.4	(79.4–91.7)	22	62.9	(46.3–77.3)	
	6	9.7	(4.1–18.9)	16	13.6	(8.3–20.6)	13	37.1	(22.7–53.7)	
.029										.093
	13	20.6	(12.1–31.8)	43	36.1	(27.9–45.0)	10	28.6	(15.7–44.8)	
	50	79.4	(68.2–87.9)	76	63.9	(55.0–72.1)	25	71.4	(55.2–84.3)	
.144										.764
	4	30.8	(11.4–57.7)	17	39.5	(26.0–54.4)	3	30.0	(9.3–60.6)	
	9	69.2	(42.3–88.6)	26	60.5	(45.6–74.0)	7	70.0	(39.4–90.7)	
.620										.002
	45	71.4	(59.5–81.4)	98	82.4	(74.8–88.4)	35	100	-	
	18	28.6	(18.6–40.5)	21	17.6	(11.6–25.2)	-	-	-	
.911										.064
	34	54.0	(41.7–65.9)	78	65.5	(56.7–73.6)	27	77.1	(61.5–88.6)	
	29	46.0	(34.1–58.3)	41	34.5	(26.4–43.3)	8	22.9	(11.4–38.5)	

4 | DISCUSSION

In our longitudinal study among nursing students in Catalonia, several changes in tobacco use patterns occurred between the baseline and the 3-year follow-up. The overall prevalence of current smokers decreased, and the overall prevalence of former smokers increased. Among current smokers at baseline, more than a quarter of them were recent quitters at follow-up. Being a nondaily smoker at baseline was a predictor of quitting at follow-up. Among never smokers at baseline, 4.6% were new smokers at follow-up. Finally, among former smokers at baseline, 23.2% had relapsed at follow-up.

Our results regarding predictors of quitting smoking are consistent with previous findings in the literature among college students (Pardavila-Belio et al., 2019; Wetter et al., 2004). Being a nondaily smoker was the strongest predictor of quitting at follow-up, which is in line with what Wetter et al., have found in their study. The fact that nondaily smokers had a higher probability of quitting could be associated with their low nicotine dependence, a well-known predictor of quitting among college students (Pardavila-Belio et al., 2019). However, a lower level of addiction and frequency of use has also been linked to continuing smoking because of psychosocial factors rather than a physical addiction (Fernández et al., 2015). In fact, nondaily college smokers have an important heterogeneity regarding their behavioral and psychosocial factors, presenting relevant differences in their frequency and quantity of use, social smoking and perceived addiction (Romero et al., 2014). As such, analyzing these factors among subgroups of nondaily users could provide further information about the specific factors that influence them to quit smoking. Notwithstanding that nondaily use was more prevalent among the youngest participants, age and sex were not associated with quitting smoking in this cohort of nursing students. Accordingly, Pardavila-Belio et al. found age and sex had no influence on the probability of quitting among a cohort of Spanish college students. In contrast, in another longitudinal study among U.S. college students, Buu et al. found males more likely to be both continuing smoking and quitting recently than females; however, they compared both groups with those who continued being never smokers rather than compare both groups (continued as smokers vs. recent quitters) with each other as we have done. Also, the fact that Berg et al. (2020) included all tobacco products in the definition of smoker, including e-cigarettes, water pipes, chewing tobacco and more (in addition to cigarettes), may explain these differences. Likewise, those who have included the year of university as a potential predictor of tobacco use have described an increased probability of using tobacco among first year students, which points out that the first years of college may be a pivotal period in preventing tobacco initiation (Sutfin et al., 2022). Finally, it must be mentioned that a potential factor associated with quitting among nursing students could be having a higher tobacco-related knowledge since they might have received training about this topic during their university education. Nonetheless, it seems that higher tobacco-related

knowledge received during academic years is not associated with lower tobacco use among health students (Han et al., 2011).

The 3-year quitting rate obtained was three times higher than the 4-year rate reported in longitudinal research conducted among Spanish college students (Gutiérrez-Bedmar et al., 2009) but was similar to the 6 and 27-month rate reported in college smokers enrolled in smoking cessation programs (Joo et al., 2020; Pardavila-Belio et al., 2019). Since no smoking cessation programs were carried out among the cohort of our study, the striking cessation rate may be related to the participants' role as nursing students. We hypothesize that this role might have influenced their awareness of social norms and of the acceptability (or rather lack of acceptability) of smoking and, consequently, it might have increased their odds of quitting (Alamar & Glantz, 2006). Furthermore, we have observed that a high proportion of participants lost to follow-up were current smokers at baseline, compared to never smokers, which could disguise the actual incidence of quitting (Laroussy et al., 2022).

Smoking initiation rates in our nursing student cohort are in concordance with a longitudinal study among Spanish college students (Gutiérrez-Bedmar et al., 2009). It is noteworthy to mention that this initiation rate may be underestimated because we only examined the initiation of MF and RYO cigarette consumption. Furthermore, there may be a response bias regarding lower rates of participation among new smokers. Perhaps nursing students who smoked anticipated being judged by the researchers and therefore were more reluctant to participate, a phenomenon that has been reported in studies conducted among health professionals (Zhang & Jose Duaso, 2021). In addition, we observed that MF cigarettes were the main type of product involved in tobacco initiation and relapse in this cohort, which is in line with other studies (Buu et al., 2020; Joo et al., 2020). Nevertheless, the overall prevalence of other products such as e-cigarettes, water pipes and cannabis increased between baseline and follow-up, although it was lower than that reported in other studies (Buu et al., 2020). This fact suggests that the decreasing trend of cigarette initiation and increasing use of alternative tobacco products among college students might have also been reflected among nursing students (American College Health Association, 2022).

Generally, rates and predictors of smoking status transitions among this cohort of nursing students were similar to those reported among other college students, despite being an important group regarding their role in tobacco control. This fact indicates that similar factors could be influencing their tobacco behaviors, at the same time highlighting the need to intervene massively among college students to reduce tobacco product consumption and their negative consequences. The university setting could be a perfect time to prevent tobacco use initiation and to reinforce the observed quitting trends through targeted strategies for college students. The current evidence recommends the use of comprehensive tobacco control programs to address multiple components, such as policy, education and cessation programs (Centers for Disease Control and Prevention, 2014). The implementation of these comprehensive

TABLE 3 Predictors of smoking cessation in a cohort of nursing students according to baseline characteristics and smoking status.

	Recent quitters ^a		p-value	Adjusted OR ^b and 95% CI
	n	%		
Overall	78	28.3		
Sex			.212	
Male	13	37.1		1.38 (0.63–3.05)
Female	65	27.0		1.00
Age group ^c			.191	1.01 (0.96–1.08)
≤19 years	30	34.1		
20–24 years	32	23.4		
≥25 years	15	31.3		
Year in nursing school			.906	
First	28	28.3		
Second	21	31.3		
Third	15	25.4		
Fourth	13	27.7		
Place of birth			.146	
Catalonia	61	26.3		
Outside of Catalonia	14	37.8		
Location of nursing school			.075	
Barcelona	62	26.3		
Outside of Barcelona	16	40.0		
Type of nursing school			.201	
Public	29	31.9		
Private with public funding	13	19.7		
Private	36	30.3		
Age of initiation			.614	
<17 years	49	26.8		
≥17 years	27	29.7		
Reason why they initiated smoking				
Having peer/family smoker	48	26.7	.421	
Other	53	27.5	.653	
Reason why they currently smoke				
For reducing stress/relaxing	32	21.5	.006	
For pleasure	51	26.6	.314	
Other	34	25.4	.301	
Baseline smoking status			<.001	
Nondaily smoker	48	45.3		3.86 (2.19–6.82)
Daily smoker	30	17.6		1.00
Type of product used			.222	
Only manufactured and/or roll-your-own cigarettes	59	30.4		
Manufactured and/or roll-your-own cigarettes + other/s	19	23.2		
Number of cigarettes per day			<.001	
<10	48	41.4		
10–19	16	18.2		

(Continues)

TABLE 3 (Continued)

	Recent quitters ^a		p-value	Adjusted OR ^b and 95% CI
	n	%		
≥20	14	19.4		
Heaviness of smoking index			.036	
Low (0–2)	62	32.0		
Medium and high (3–6)	16	19.5		
Number of quit attempts in the last year			.557	
0	57	27.8		
1	10	33.3		
≥2	7	21.2		
Are you seriously thinking about quitting now?			.823	
Yes	11	29.7		
No	64	27.9		
Are you thinking about cutting back consumption?			.026	
Yes	34	22.5		
No	41	34.7		

Note: Significant values are highlighted in bold.

Abbreviations: CI, confidence interval; OR, odds ratio.

^aCompared with “continued as smokers” (n = 198).

^bOR adjusted for sex, baseline age and baseline smoking status.

^cContinuous variable.

tobacco control programs has proven successful in decreasing the prevalence of tobacco use and SHS exposure among U.S. young adults (Centers for Disease Control and Prevention, 2014). The American Nonsmokers' Rights Foundation developed a Comprehensive Tobacco Control Program (CTCP) model, designed for college students, that encompasses several factors that influence tobacco behaviors in this population. It includes (i) the implementation of tobacco-free campus policies, (ii) restriction of tobacco sales, advertising, and promotion, (iii) tobacco prevention interventions and (iv) tobacco cessation programs (American Nonsmokers' Rights Foundation, 2008). The implementation of this program in nursing universities may be effective in encouraging smoking cessation among nursing students and in reinforcing the already observed decrease in smoking. We consider that tobacco-free campus policies should also ban the use of alternative tobacco and nicotine products since they frequently contain nicotine. As well, tobacco prevention interventions should be offered to first year students, since first year' students are the most likely to use tobacco products. Moreover, the use of online methods, such as social media, university virtual campus platforms and text messages, in tobacco prevention and cessation programs may increase their effectiveness (Berg et al., 2014; Müssener et al., 2016). Finally, monitoring tobacco product use among nursing students could help to customize the last cited intervention for specific groups and products according to its predictors of initiation or cessation. More research is needed to evaluate the implementation of these strategies on nursing students in Spain.

4.1 | Limitations and strengths

The main limitation of this study is the potential bias due to attrition of the cohort of participants. In this regard, participants lost to follow-up were more likely to be male, aged >20 years, and current smokers at baseline (Laroussy et al., 2022). Furthermore, even with the large number of participants at baseline, the small number of participants at follow-up made it difficult to analyse predictors of all smoking status transitions. Despite the wide range of tobacco and nicotine products explored, we only included MF and RYO cigarettes in the definition of smoker, because these are the main products consumed in Spain. This decision may have reduced the number of participants identified as smokers. As previously explained, due to the voluntary nature of the participation in the follow-up, some selection bias is possible, as those agreeing to be followed up could be the participants with greater health awareness and greater likelihood of being nonsmokers. This fact might have accounted for the low prevalence of new smokers at follow-up. A notable limitation of this work is the fact that we were not able to assess all quitting predictors that have been described in the literature. The most relevant absences are: social environment, perceived addiction and self-efficacy to quitting smoking. However, we have included several individual and contextual variables that are important for studying transitions in smoking among college students such as sex, age and several characteristics that describe baseline smoking status (frequency of use, type of tobacco product, number of CPD, HSI and more). This study is, to

TABLE 4 Baseline characteristics of the participants who had started to smoke at follow-up.

	New smokers ^a		p-value
	n	%	
Overall	29	4.6	
Sex			.911
Male	3	4.9	
Female	26	4.6	
Age group ^b			.176
≤19 years	15	5.7	
20–24 years	13	4.3	
≥25 years	-	-	
Year in nursing school			.625
First	13	5.8	
Second	5	3.1	
Third	6	5.1	
Fourth	4	3.9	
Place of birth			.087
Catalonia	27	5.4	
Outside of Catalonia	2	1.7	
Location of nursing school			.523
Barcelona	24	4.9	
Outside of Barcelona	5	3.6	
Type of nursing school			.737
Public	12	4.0	
Private with public funding	5	4.8	
Private	12	5.4	

^aCompared with “continued as never smokers” (n = 597).

^bContinuous variable.

the best of our knowledge, the first longitudinal research in Europe that has addressed the transitions in smoking status and its predictors among nursing students. Finally, data were collected through a self-report questionnaire and, therefore, are vulnerable to recall bias regarding smoking status.

5 | CONCLUSIONS

Smoking nondaily (either MF or RYO cigarettes) was the main predictor of quitting in a cohort of Spanish nursing students in the Catalonia region. Less than 5% of participants had started smoking at follow-up and just under a quarter of former smokers had relapsed. Early implementation of a comprehensive tobacco control program that includes tobacco-free campus policies, restriction of tobacco sales, advertising, and promotion, tobacco prevention interventions

TABLE 5 Baseline characteristics of the participants who had relapsed at follow-up.

	Quitters who relapsed ^a		p-value
	n	%	
Overall	29	23.2	
Sex			.168
Male	5	38.5	
Female	24	21.4	
Age group ^b			.409
≤19 years	6	21.4	
20–24 years	17	28.3	
≥25 years	6	16.7	
Year in nursing school			.703
First	6	16.7	
Second	9	28.1	
Third	7	25.9	
Fourth	6	24.0	
Place of birth			.618
Catalonia	20	22.2	
Outside of Catalonia	8	26.7	
Location of nursing school			.523
Barcelona	24	24.5	
Outside of Barcelona	5	18.5	.515
Type of nursing school			
Public	8	16.7	
Private with public funding	8	33.3	
Private	13	24.5	
Age of initiation			.317
<17 years	22	26.8	
≥17 years	7	18.4	
Age of cessation			.561
<19 years	10	20.4	
≥19 years	17	25.0	
Reason why they quit smoking			
To protect my health	23	23.0	.895
To save money	9	26.5	.687
Other	13	22.4	.701
Use of any treatment to quit smoking			1.000
Yes	1	20.0	
No	28	24.1	

^aCompared with “continued as former smokers” (n = 96).

^bContinuous variable.

and tobacco cessation programs may be effective in decreasing tobacco product use prevalence among nursing students. The use of online tools and monitoring tobacco product use may increase its effectiveness.

AUTHOR CONTRIBUTIONS

Kenza Laroussy, Esteve Fernández and Cristina Martínez: Conceptualization, Investigation, Methodology, Writing—Original Draft. **Yolanda Castellano:** Formal analysis and Data curation. **Marcela Fu:** Validation. **Antoni Baena and Jon Aldazabal:** Software. **Ariadna Feliu:** Writing—Review and Editing. **Mercè Margalef:** Project administration. **Olena Tigova:** Visualization and Writing—Review and Editing. **Jordi Galimany:** Supervision. **Montserrat Puig:** Supervision. **Carmen Moreno:** Resources and Funding acquisition. **Albert Bueno:** Supervision. **Antonio López:** Supervision. **Judith Roca:** Writing—Review and Editing. All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE [<http://www.icmje.org/recommendations/>]): Substantial contributions to conception and design, acquisition of data or analysis and interpretation of data; Drafting the article or revising it critically for important intellectual content.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest has been declared by the author(s).

PEER REVIEW

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DATA AVAILABILITY STATEMENT

Data available on request from the corresponding author. At this moment, we have decided not to do it since most of the analysis have not been performed by the research team. Nonetheless, if the editor or reviewers want to browse our database, we can provide an encrypted and protected access through an online file.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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ARTÍCULO IV

Passive exposure and perceptions of smoke-free policies in hospital and university campuses among nursing students: A cross-sectional multicenter study

Passive exposure and perceptions of smoke-free policies in hospital and university campuses among nursing students: A cross-sectional multicenter study

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ABSTRACT

INTRODUCTION Outdoor smoke-free regulations reduce exposure to secondhand smoke (SHS) and help to denormalize tobacco use. As future key agents in health promotion, nursing students' attitudes should agree with tobacco-control policies. The objectives of this study were: 1) assess nursing students' exposure to SHS in nursing schools, 2) explore their perceptions of compliance with the existing smoke-free regulations in acute-care hospitals; and 3) describe their support for indoor and outdoor smoking bans on hospital and university campuses.

METHODS This was a cross-sectional multicenter study conducted in 2015–2016 in all 15 university nursing schools in Catalonia, Spain. A questionnaire gathered information on SHS exposure, awareness of the smoke-free regulation in acute-care hospitals, and support for smoke-free policies in indoor and outdoor areas of hospitals and university campuses. Participants were nursing students attending classes on the day of the survey. We performed descriptive analyses and calculated adjusted prevalence ratios (APR) and 95% confidence interval (CI).

RESULTS Of 4381 respondents, 99.1% had seen people smoking in outdoor areas of their university campus, and 75.2% had been exposed to SHS on the campus (6.0% indoors and 69.2% outdoors). Nearly 60% were aware of the smoking regulation in place in acute-care hospitals. There was widespread support for smoke-free indoor hospital regulation (98.7%), but less support (64.8%) for outdoor regulations. Approximately 33% supported the regulation to make outdoor healthcare campuses smoke-free, which was higher among third-year students compared to first-year students (APR=1.41; 95% CI: 1.24–1.62), among never smokers (41.4%; APR=2.84; 95% CI: 2.21–3.64) compared to smokers, and among those who were aware of the regulation (38.4%; 95% CI: 1.37–1.75).

CONCLUSIONS Exposure to SHS on university campuses is high. Nursing students express low support for strengthening outdoor smoking bans on hospital and university campuses. Interventions aiming to increase their support should be implemented.

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INTRODUCTION

Exposure to secondhand smoke (SHS) is a health risk that causes avoidable morbidity and mortality¹. For this reason, the World Health Organization, through the MPOWER package, assists countries to implement effective tobacco control

measures to tackle the tobacco epidemic². Some strategies have been more widely implemented, such as reducing both tobacco demand and SHS exposure in indoor public places^{3,4}. Such policies have been mainly implemented in settings with a public or social role, such as hospitals and universities⁵.

Increasing awareness of the health consequences of active and passive smoking among nursing students is critical because they will play a key role in implementing smoking cessation strategies in their future practice^{6,7}. They receive their education on university campuses but complete their clinical rotations in healthcare facilities; therefore, they are influenced by these two environments in which they learn and socialize. Increasing awareness can minimize the consequences of SHS exposure and denormalize tobacco smoking among future generations of nurses⁷.

Over the past decade, outdoor smoke-free hospital campuses among college students have been successful in reducing smoking initiation^{8,9}, and increasing both perceptions of peers' tobacco use and smoking norms⁸. However, few studies have assessed nursing students' perceptions of smoking in indoor and outdoor areas of acute-care hospitals and university campuses.

Tobacco control law in Spain bans smoking in indoor public places and some outdoor public places, including acute-care hospital grounds¹⁰, but it does not include university campuses. Considering that 29.7% of nursing students in Catalonia smoke¹¹, outdoor areas near university entrances may concentrate smokers¹², posing a health risk to non-smokers and promoting smoking normalization among future nurses.

The aims of this study were: 1) to assess SHS exposure in nursing schools as perceived by students; 2) to explore their awareness of the national smoke-free regulation in acute-care hospitals; and 3) to describe their opinions on the ban in indoor and outdoor areas of hospitals and university campuses.

METHODS

Design and participants

We conducted a cross-sectional study that included all university nursing schools in Catalonia (n=15). We contacted the deans of each school to request permission to conduct the survey and all of them agreed to participate in the study. The target participants were

all nursing students enrolled in the 2015–2016 academic year, from the first to the fourth year (7660 nursing students). A non-probabilistic sample was obtained. To be included, participants had to: 1) be aged ≥ 18 years; 2) attend a regular class in a core subject on the day of data collection; and 3) provide written informed consent to participate. Core subjects were to be compulsory, so all students had to take them. They were selected at the discretion of the deans based on the number of students enrolled in the selected class, to ensure the highest possible participation. Students were not notified of the survey in advance.

Additional details of the fieldwork have been described elsewhere^{11,13}. The fieldwork was conducted between October 2015 and June 2016. In the class, all students were verbally informed about the objectives of the study by one of the researchers. After giving consent, they completed a paper-and-pencil questionnaire in an average of about 15 minutes. The study was approved by the Research Ethics Committee of the Bellvitge University Hospital and was conducted in accordance with the World Medical Association's Code of Ethics for experiments involving human subjects (Declaration of Helsinki).

Instrument and variables

An anonymous self-administered questionnaire was developed *ad hoc* and piloted in one of the universities, confirming its comprehension and applicability¹¹. For the current analyses, we used variables related

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to compliance with smoking regulations, exposure to SHS, and agreement with smoke-free policies in acute-care hospitals and university campuses.

Having seen people smoking on the university campus in the past week

This was assessed by the item: 'Please indicate how often you have seen people smoking on this campus in the past seven days'; done separately for indoor and outdoor areas. Responses were on a 5-point Likert scale response codes ranging from 'never' to 'many times'. We dichotomized this variable by categorizing 'never' and 'seldom' as 'no' and everything else as 'yes' for ease of interpretation and simplicity of results.

Exposure to SHS on the university campus in the past week

This was assessed with the question: 'In the past seven days, have you ever been exposed to tobacco smoke on this campus?'. Response options were 'not exposed', 'exposed only indoors', 'exposed only outdoors', and 'exposed both indoors and outdoors'. The second and fourth categories were collapsed for analysis.

Awareness of smoke-free policies in acute-care hospitals in Spain

This was assessed with a multiple-choice question: 'To the best of your knowledge, what is the current smoking policy in place in acute-care hospitals?'. Response options ranged from 'smoking is allowed everywhere' (the least restrictive) to 'smoking is prohibited in all indoor and outdoor areas of the hospital, including the garden and walking or transit areas, the parking lot, etc.' (the most restrictive and correct response). We dichotomized this variable into 'aware of the policy' and 'not aware of the policy'. 'Don't know' responses were categorized as 'not aware of the regulation'.

Agreement with the prohibition of smoking

This was assessed individually for indoors and outdoors in hospitals and in outdoor areas of university health sciences campuses and university campuses of any faculty. Each of the four questions had a 5-point Likert scale response options ranging from 'strongly agree' to 'strongly disagree'. We collapsed the categories into 'agree' ('strongly agree' or 'agree')

and 'disagree' ('neither agree nor disagree', 'disagree', and 'strongly disagree') with each statement to gain interpretability and simplicity of the results and to be able to run logistic regression models to identify predictors of agreement with each statement.

The main independent variables were: sex; year of nursing school (first, second, third, and fourth); type of university (public, private); and smoking status. Smoking status was categorized as: 1) smoker (either daily or occasional), 2) former smoker (person who smoked but has been abstinent for 6 or more months), and 3) never smoker¹⁴. For some analyses, we considered exposure to SHS in the last seven days on campus (yes, no), and being aware of the smoke-free policy in acute-care hospitals (yes, no), as independent variables.

Statistical analysis

We calculated the proportions (%) and their corresponding 95% confidence intervals (CI) of self-reported exposure to SHS and the rest of the dependent variables. We estimated the factors associated with the agreement with smoking regulations in different locations using Poisson regression models with robust variance adjusted for all independent variables (sex, year of nursing school, smoking status, exposure to SHS, and awareness of the smoking policy). The variables used to fit the models were selected based on the theoretical framework, previous results in the literature, and data availability. The models provide prevalence ratios (PR) and 95% CI, which are the natural measure of association in cross-sectional studies, and indicate how many times a group agrees more with regulating smoking compared with a reference category group. The reference group was selected *a priori* on the assumption that it had the lowest agreement, to facilitate the interpretation of the results. We also applied weights to all analyses generated according to participation rates in each university. All tests were two-tailed, and the statistical significance was set at $p < 0.05$. Analyses were performed with SPSS© 21.0 and STATA© 13 for Windows©.

RESULTS

We obtained valid information from 4381 participants, representing 57.2% (4381/7660) of all nursing students enrolled in the 2015–2016 academic year

Table 1. Prevalence of seeing people smoking and being exposed to SHS on the university campus in the past 7 days among nursing students, ECTEC Study, Catalonia, Spain, 2015–2016 (N=4381)

Characteristics	Have seen people smoking						Exposed to SHS						
	Indoors			Outdoors			Not exposed		Only outdoors		Only indoors plus indoors and outdoors		p ^a
	n	%	p ^a	n	%	p ^a	n	%	n	%	n	%	
Total	690	16.8		4306	99.1		1081	24.8	3008	69.2	260	6.0	
Sex			<0.001			0.908							0.002
Men	163	25.0		692	99.1		147	21.0	496	70.7	58	8.3	
Women	527	15.3		3614	99.1		934	25.6	2512	68.9	202	5.5	
Year			0.926			0.985							0.222
First	205	16.2		1331	99.1		351	26.1	908	67.6	85	6.3	
Second	177	16.8		1091	99.0		266	24.2	762	69.3	71	6.5	
Third	145	16.2		932	99.1		244	26.0	647	68.9	48	5.1	
Fourth	130	17.2		800	99.1		178	22.0	588	72.5	45	5.5	
Type of university			<0.001			0.426							<0.001
Public	371	20.1		1934	99.0		725	37.0	1109	56.7	123	6.3	
Private	319	14.1		2372	99.2		356	14.9	1899	79.4	137	5.7	
Smoking status			0.095			0.663							<0.001
Current	180	14.9		1263	99.1		181	14.2	1023	80.4	69	5.4	
Former	87	16.7		556	98.8		163	28.8	370	65.5	32	5.7	
Never	416	17.8		2447	99.1		722	29.3	1591	64.4	156	6.3	

SHS: secondhand smoke. ^a Chi-squared test.

in Catalonia and 98.5% (4381/4447) of all students attending the targeted classes. Approximately 84% were women and 58.4% were in their first or second academic year. Overall, 29.7% were current smokers and 57.2% had never smoked.

Exposure to secondhand smoke on the campus

Approximately 17% of respondents had seen someone smoking in indoor areas, with significant differences by sex (men: 25.0%; women: 15.3%; p<0.001) and type of university (public: 20.1%; private: 14.1%; p<0.001). In contrast, 99.1% had seen someone smoking in outdoor areas, with no differences according to the variables studied (Table 1).

Six percent of participants reported being exposed to SHS in indoor areas (only indoors or both indoors and outdoors), while 69.2% reported being exposed only outdoors. Thus, 75.2% of the students were exposed to SHS somewhere on campus. Only 24.8% of the participants reported that they were exposed neither indoors nor outdoors (Table 1). There were some significant differences in the reporting of SHS exposure among students according to sex, type of university, and smoking status.

Table 2. Prevalence of awareness of the smoke-free policy in acute-care hospitals in Spain among nursing students, ECTEC Study, Catalonia, Spain, 2015–2016 (N=4381)

Characteristics	Aware of the regulation		
	n	%	p ^a
Total	2570	59.3	
Sex			0.597
Men	420	60.2	
Women	2150	59.1	
Year			<0.001
First	727	54.3	
Second	647	59.4	
Third	610	64.9	
Fourth	504	62.1	
Type of university			<0.001
Public	1222	62.5	
Private	1348	56.6	
Smoking status			0.008
Current	791	62.2	
Former	345	61.7	
Never	1413	57.4	
Exposed to SHS ^b			0.646
Yes	1911	59.0	
No	641	59.8	

^a Chi-squared test. ^b Exposed to secondhand smoke on the campus in the past 7 days.

Table 3. Prevalence of and factors associated with agreement to regulate smoking in hospitals and university campuses among nursing students, ECTEC Study, Catalonia, Spain, 2015–2016 (N=4381)

Variables	Indoor hospital campuses				Outdoor hospital campuses				Outdoor university health science campuses				Outdoor university campuses of any faculty			
	n	%	APR	95% CI	n	%	APR	95% CI	n	%	APR	95% CI	n	%	APR	95% CI
Total	4306	98.7			2830	64.8			1435	33.0			1242	28.5		
Sex																
Men	688	98.3	1.00	0.98–1.01	463	66.0	1.04	0.99–1.11	235	33.7	1.05	0.93–1.20	218	31.1	1.15	1.03–1.29
Women (Ref.)	3618	98.8	1		2367	64.6	1		1200	32.8	1		1024	28.0	1	
Year																
First (Ref.)	1324	98.4	1		827	61.4	1		371	27.6	1		287	21.4	1	
Second	1097	99.2	1.01	0.99–1.02	726	65.7	1.05	0.99–1.11	352	31.9	1.12	0.99–1.28	316	28.6	1.31	1.15–1.49
Third	929	98.4	1.00	0.99–1.01	657	69.7	1.09	1.03–1.16	382	40.6	1.41	1.24–1.62	345	36.6	1.65	1.46–1.87
Fourth	799	98.8	1.00	0.99–1.01	520	64.0	1.02	0.96–1.09	279	34.5	1.24	1.07–1.45	244	30.0	1.39	1.18–1.65
Smoking status																
Current (Ref.)	1255	98.1	1		599	46.8	1		190	14.9	1		161	12.6	1	
Former	558	98.8	1.00	0.99–1.02	381	67.4	1.44	1.33–1.57	202	35.9	2.44	1.89–3.15	180	31.9	2.54	1.96–3.29
Never	2451	99.0	1.01	0.99–1.02	1819	73.4	1.59	1.49–1.69	1023	41.4	2.84	2.21–3.64	882	35.6	2.90	2.26–3.72
Exposed to SHS^a																
Yes (Ref.)	3211	98.6	1		2061	63.2	1		1019	31.3	1		878	26.9	1	
No	1069	99.0	1.00	0.99–1.01	751	69.6	1.04	1.00–1.09	405	37.6	1.03	0.96–1.11	354	32.8	1.06	0.99–1.13
Aware of the regulation																
Yes	2532	98.5	1.00	0.99–1.01	1937	75.4	1.54	1.46–1.62	983	38.4	1.55	1.37–1.75	853	33.3	1.55	1.37–1.76
No (Ref.)	1739	98.8	1		875	49.6	1		443	25.2	1		381	21.6	1	

APR: adjusted prevalence ratio derived from Poisson regression models with robust variance; adjusted for all independent variables studied (all included in the table). The variables were selected for their theoretical and statistical contribution based on previous results from the literature and our previous analysis^{1, a}. Exposed to secondhand smoke on the university campus in the past 7 days.

Awareness of the smoke-free regulation in acute-care hospitals in Spain

Of all the participants, 59.3% were aware of the smoking regulation in acute-care hospitals. This awareness was higher among those in their final year of study (between 60% and 65%), those from a public university (62.5%) and among current and former smokers (around 62%) (Table 2).

Agreement with regulating smoking in different places

Table 3 shows the association between students' opinions about banning smoking in specific locations by independent variables. Most students (98.7%) agreed with banning smoking in indoor areas of hospital campuses, with no differences by independent variables. In contrast, 64.8% agreed with the current regulation banning smoking in outdoor areas of hospital campuses, especially among third-year students compared to first-year students (69.7%; APR=1.09; 95% CI: 1.03–1.16), never smokers (73.4%; APR=1.59; 95% CI: 1.49–1.69) and former smokers (67.4%; APR=1.44; 95% CI: 1.33–1.57) compared to current smokers, those who had not been exposed on the campus during the last seven days (69.6%; APR=1.04; 95% CI: 1.00–1.09), and those who were correctly aware of the smoke-free regulation in place in acute-care hospitals (75.4%; APR=1.54; 95% CI: 1.46–1.62).

Thirty-three percent of the participants were in favor of regulating smoking in outdoor areas of health science campuses. This support was higher among students in their final year compared to those in their first year (40.6% of students in their third year; APR=1.41; 95% CI: 1.24–1.62), also among never smokers (41.4%; APR=2.84; 95% CI: 2.21–3.64) and former smokers (35.9%; APR=2.44; 95% CI: 1.89–3.15) compared to smokers, and among those who were well aware of the regulation compared to those who were not well aware of it (38.4%; APR=1.55; 95% CI: 1.37–1.75). Regarding their agreement with the regulation of smoking in outdoor areas of all university campuses (not limited to health sciences), 28.5% agreed with the regulation; this support was higher among men (31.1%; APR=1.15; 95% CI: 1.03–1.29), those in their third academic year (36.6%; APR=1.65; 95% CI: 1.46–1.87) compared to those in their first year, never smokers (35.6%; APR=2.90;

95% CI: 2.26–3.72) and former smokers (31.9%; APR=2.54; 95% CI: 1.96–3.29) compared to current smokers, and among those who were aware of the regulation (33.3%; APR=1.55; 95% CI: 1.37–1.76) (Table 3).

We also performed a multilevel analysis using the type of university variable as the second level to assess the effect of the university as a confounding factor, but this variable was neither significant nor did it improve the fit of the models (data not shown).

DISCUSSION

This study provides insight into compliance with indoor and outdoor smoke-free policies in hospitals and support for smoking bans on hospital and university campuses from the perspective of nursing students, two important aspects to explore due to their future role as tobacco control agents¹⁵. Almost all nursing students (99%) had seen people smoking outdoors on the university campus, and a significant proportion had seen someone smoking indoors (almost 17%). In addition, three out of four students had been exposed to SHS indoors or outdoors. These data suggest that indoor smoking is still a problem in these settings, and outdoor smoking is very prevalent, exposing non-smokers to the harms of SHS and normalizing tobacco use among students.

Although smoking has been banned in hospital campuses in Spain since 2011, four in ten nursing students were unaware of this national legislation. While almost all students support the current regulation banning smoking indoors, only three in five support such a regulation banning smoking outdoors in hospital campuses. In terms of their support for banning smoking on university campuses, only one-third of nursing students supported the adoption of this regulation on both all types of campuses and on health sciences campuses.

Regarding students' awareness of the smoke-free policy in force on hospital campuses, our results are comparable to a previous study of hospitalized patients in Catalonia. In that study, 40% of patients were aware of the regulation; however, only a few had received verbal or written information about the policy (4.8% and 6.1%, respectively)¹¹. In the current study, 60% of the students were aware of the smoke-free policy in acute-care hospitals; more specifically, students in their last year of training were slightly

more aware of the policy than those in their first year. Students in their final year may have spent more time in hospitals for their clinical training. Unfortunately, we did not ask whether students were informed of the smoke-free policy before their placements. Nevertheless, a significant proportion of nursing students, even those in their final years of training, were unaware of the smoking ban in a setting where they were either going or had completed their training and where they were likely to be working shortly. It should be noted that patients who are hospitalized in acute-care hospitals consider that health professionals should be role models in tobacco cessation (75.3%) and that they should provide smokers with support to quit smoking (83.0%)¹⁶. Therefore, nursing students should be informed about smoke-free policies and be trained in how to provide smoking cessation services to meet the expectations of their future patients.

Regarding smoking on university campuses and exposure to SHS, our multi-center study is consistent with previous studies conducted by our group^{5,12}. In one of these studies, we observed that young adults were more exposed to SHS in outdoor areas of higher education institutions than in outdoor areas of bars and terraces in Spain¹². This could be because tobacco consumption is high (24.6%) among people aged 15–24 years¹⁷, and nursing students are not an exception; in fact, our data show that 29.7% of participants smoked daily or occasionally at the time of the survey¹¹, so they smoke in different areas of their schools. Moreover, they spend most of their time in these environments. This finding has implications for national authorities and higher education institutions, as they are responsible for protecting staff and students from the hazards of SHS, both indoors and outdoors¹⁸. In Europe, the adoption of smoke-free policies on university campuses is rare, while primary and secondary schools are extensively regulated, both indoors and outdoors¹⁹. In contrast, in the United States, several foundations and non-governmental organizations have suggested that university administrators and stakeholders promote smoke-free policies, including: developing written policies; communicating them to students, faculty, and staff through multiple channels; gauging the level of support for such policies; and working with student, faculty, and staff associations to gain their support^{20,21}. In the United States, 27% of college students benefit

from tobacco-free campus policies²⁰.

We observed some discrepancy between the percentages of respondents who saw someone smoking indoors (17%) and those who reported being exposed indoors plus indoors and outdoors (6%). One possible explanation for the observed results is that students may not be aware of their exposure. In fact, some studies have found that self-reported exposure to SHS underestimates actual exposure as measured by biological markers²². Another possible explanation is that students may have seen someone smoking, but if they were far away from them, they may not have felt exposed to SHS.

In our study, nursing students expressed low level of support for the implementation of more restrictive smoking policies on university campuses, particularly in outdoor areas. Therefore, it is necessary to raise their awareness of the risks of exposure to SHS and to communicate the benefits of having smoke-free outdoor environments at both the individual and global levels²³. For nursing students in particular, it is essential to engage them in tobacco control strategies due to their future role as healthcare providers^{24,25}. In this regard, a case study in the Netherlands showed that a ban on smoking in outdoor areas of a university was associated with increased support among students after its implementation (from 64.3% to 82.1%)²⁶. These findings should encourage both higher education institutions and governments to adopt comprehensive smoke-free policies on campuses, regardless of the initial level of students' support. Additional strategies following the implementation of smoke-free laws can support compliance. These may include signage, communication campaigns, and smoking cessation promotion²¹.

Comprehensive smoke-free policies reduce tobacco use among students and the university community and reduce SHS exposure^{9,27}. In one study, smoke-free college campuses had a reduction in the number of cigarette butts on their campuses compared to colleges without such policies²⁸. Smoking outdoors, and particularly near main entrances, can increase exposure to SHS in adjacent indoor areas^{12,29}. In Catalonia, 29.7% of nursing students are smokers, of which 38% are occasional smokers¹¹, so smoking cessation support is needed to create a smoke-free culture on university campuses and promote a healthy environment. Previous smoking cessation

interventions for health profession students have shown that multicomponent interventions are effective^{30,31}. These programs should include evidence-based smoking cessation treatments to prevent withdrawal symptoms and strategies to manage cravings and stress³⁰. Unfortunately, this type of initiative is still rare in Spanish universities.

Limitations

The cross-sectional nature of this study does not allow for causal interpretation. In addition, we did not validate SHS exposure by using objective measures such as biomarkers, so SHS exposure may be underestimated. Furthermore, because we only sought to investigate whether nursing students were exposed to SHS in different locations, the precise levels of exposure were not measured. Our data did not include the entire population of nursing students in Catalonia, as not all the students were present in class at the time of the survey. However, we surveyed almost 60% of the student population, and 98.5% of those who were invited to participate agreed to take part in the study¹¹. The voluntary nature of participation may have introduced some selection bias, as those who agreed to participate may have been those who were more interested in tobacco control. Nevertheless, 98.5% agreed to participate, and the information provided was not uniformly favorable to smoke-free policies.

CONCLUSIONS

Almost all nursing students had seen people smoking outdoors on the university campus, and 17% of them had seen someone smoking indoors, even though it is prohibited by law. In addition, around 40% of nursing students were unaware that smoking is prohibited in outdoor areas of acute-care hospitals in Spain, where they are likely to train and work. One in three nursing students supported the adoption of a smoke-free outdoor policy on campus, and those in their final year of training and non-smokers were more supportive of this policy. Promoting more restrictive smoke-free policies in the higher education sector in Spain is crucial, as exposure to SHS is extremely high. There is an urgent need to improve the current Spanish legislation by extending smoke-free areas to university campuses and, more generally, to all adult education institutions. Some measures that

can increase the university community's support for these policies are promoting smoking cessation programs, communicating the dangers of tobacco and exposure to SHS, involving students in the creation of smoke-free campuses, and working with university associations to raise awareness of this hazard.

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CONFLICTS OF INTEREST

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. The authors declare that they have no competing interests, financial or otherwise, related to the current work. All the authors report that since the initial planning of the work, they received a grant for conducting the study by the Consell de Col·legis d'Infermeres i Infermers de Catalunya (Grant number: CCIC 2016).

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ETHICAL APPROVAL AND INFORMED CONSENT

Ethical approval was obtained from the Ethics and Clinical Research Committee of the Bellvitge University Hospital (Approval number: PR-173/16; Date: 9 June 2016). Participants provided informed consent.

DATA AVAILABILITY

The data supporting this research are available from the authors on reasonable request.

AUTHORS' CONTRIBUTIONS

Conceptualization: YC, EF, MF and CM. Visualization: YC. Methodology: YC, EF, MF, CM, MPS and RS. Data curation: ABA, YC, AF, KL and MM. Software: ABA, AF, KL and MM. Investigation: ABU, MF, JGM, AL, CM, CMA, MPL and RS. Validation: ABA, YC, AF, KL and MM. Formal analysis: YC. Supervision: ABU, MF, JG, AL, MPL and RS. Funding acquisition: CM. Project administration: CM. Resources: CM. Writing, reviewing and editing: ABA, ABU, YC, AFA, EF, JGM, KL, MM, CMA and RS.

PROVENANCE AND PEER REVIEW

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ARTÍCULO V

Determinants of tobacco use transitions in smoker nursing students: A prospective longitudinal study

DETERMINANTS OF TOBACCO USE TRANSITIONS IN SMOKER NURSING STUDENTS: A PROSPECTIVE LONGITUDINAL STUDY

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DETERMINANTS OF TOBACCO USE TRANSITIONS IN SMOKER NURSING STUDENTS: A PROSPECTIVE LONGITUDINAL STUDY

ABSTRACT

Introduction: The use of emerging tobacco and nicotine products affects tobacco use behaviors among college students.

Aim: To examine transitions in tobacco use patterns and identify their predictors among smokers in a cohort of nursing students.

Methods: This was a prospective longitudinal study of a cohort of Spanish nursing students between 2015–2016 and 2018–2019. We examined transitions in tobacco use patterns among smokers from (i) daily to nondaily smoking; (ii) nondaily to daily smoking; (iii) exclusive cigarette use to polytobacco use; (iv) polytobacco use to exclusive cigarette use; (v) between products; (vi) reducing consumption by ≥ 5 cigarettes per day (CPD); and (vii) quitting smoking between baseline and follow-up. We used a logistic regression model to identify predictors of reducing cigarette consumption by ≥ 5 CPD and quitting smoking.

Results: Among daily smokers at baseline, 12.1% transitioned to nondaily smoking at follow-up, while 36.2% of nondaily smokers shifted to daily smoking. Among exclusive cigarette users, 14.2% transitioned to polytobacco use, while 48.4% of polytobacco users switched to exclusive cigarette use. Among all smokers (daily and nondaily smokers), 60.8% reduced their cigarette consumption by ≥ 5 CPD, and 28.3% quit smoking. Being a nondaily smoker and having lower nicotine dependence were inversely associated with reducing cigarette consumption, while being a nondaily smoker was directly associated with quitting smoking.

Conclusions: Nursing students who smoked experienced diverse transitions in tobacco use patterns over time. Evidence-based tobacco use preventive and cessation interventions are needed to tackle tobacco use among future nurses.

Keywords: longitudinal study, nursing students, tobacco use, tobacco use cessation, transitions

INTRODUCTION

Tobacco use remains a primary public health concern, causing over 8 million deaths globally every year (WHO, 2023). Despite efforts to control tobacco use, novel tobacco and nicotine products have changed tobacco use patterns among specific subgroups such as young adults, including college students (ACHA, 2022; NCCDPHP, 2012; WHO, 2023).

According to the American College Health Association (ACHA) in the United States, in 2022 40.3% of college students were current users of any tobacco and nicotine products in the past 3 months (ACHA, 2022). In particular, 24.2% were daily users, 8.9% weekly users, and 7.2% monthly users (ACHA, 2022), and the most commonly used product was electronic cigarettes (e-cigarettes), whereas in Europe the most common product used is cigarettes (Sreeramareddy et al., 2018).

The emergence of novel tobacco and nicotine products, new forms of targeted tobacco advertising and renewed tobacco industry activity, have led to transitions in tobacco product use among college students, resulting in increased experimentation with tobacco and nicotine products, increased prevalence of alternative tobacco product use, and more polytobacco use (ACHA, 2022; Clendennen et al., 2019; Loukas et al., 2015). Research shows that nearly 59% of college students have ever used at least one tobacco or nicotine product with 41% having ever used two or more tobacco or nicotine products (Clendennen et al., 2019). Experimenting with various tobacco products increases the likelihood of transitioning to regular cigarette use (Clendennen et al., 2019).

The regular use of alternative or novel tobacco products, including heated tobacco products (HTPs), e-cigarettes, smokeless tobacco, cigars/cigarillos/little cigars, and vaporizers, is becoming increasingly popular among both college smokers and nonsmokers (Loukas et al., 2015). Regular use of these products may lead to cigarette initiation among nonsmokers and

hamper quitting smoking among cigarette users (Osibogun et al., 2022; Pierce et al., 2021; Spindle et al., 2017). Moreover, it increases the probability of polytobacco use, which may lead to increased levels of nicotine intake and higher nicotine dependence (Loukas et al., 2016; Osibogun et al., 2022; Pierce et al., 2021). Furthermore, the concurrent use among this group of tobacco products and other substances such as cannabis is disturbing, with worrying prevalence rates (up to 9% according to Odani et al.).

The university period is a crucial time for most college students to establish smoking behaviors (NCCDPHP, 2012), emphasizing the need to identify predictors and correlates of changes in tobacco use. This issue is of particular importance among nursing students, who should perform tobacco prevention and cessation interventions in their future professional role. Therefore, the objective of this study was to examine transitions in tobacco use patterns and identify their predictors among smokers in a cohort of nursing students.

METHODS

Design and Participants

We prospectively followed a cohort of nursing students from all nursing schools in Catalonia (Spain) from the academic year 2015–2016 to 2018–2019. At baseline, 4381 nursing students completed a questionnaire, after signing an informed consent in which they accepted to participate in the study, including their willingness to participate in future follow-up. All details of the study's description, participation, and data collection have been already reported (Laroussy et al., 2022; Martínez et al. 2019). For this study we included completed follow-up surveys from subjects who were current smokers (daily and nondaily) at baseline.

Instrument and Variables

At baseline, we used a self-administered paper-and-pencil questionnaire that explored the use of different tobacco products, e-cigarettes, HTPs, and cannabis. The questionnaire was based on that of the Global Health Professional Survey (GHPS). For follow-up, an online version of the baseline questionnaire was launched through the LimeSurvey platform, which included 11 questions regarding sociodemographic characteristics and 15 questions about the use of tobacco products, e-cigarettes, and cannabis. Prior to administration, the follow-up questionnaire was piloted among 20 collaborating researchers from different areas and with 50 study participants (see Laroussy et al., 2022).

In both the baseline and follow-up surveys, we asked participants about their current and former use of different tobacco products, including manufactured (MF) and roll-your-own (RYO) cigarettes, cigars/cigarillos/little cigars and water pipes, e-cigarettes, HTPs, and cannabis. According to the current Centers for Disease Control and Prevention and *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition* definitions of smoking behaviors, current users of combustible tobacco products (either MF or RYO cigarettes) were considered current smokers. Participants who used any of these products daily were classified as daily smokers, while those who used them not every day, but at least once in the last 30 days, were classified as nondaily smokers.

Current smokers were asked about their tobacco use patterns, including age at smoking initiation (<17 and \geq 17 years); reasons why they initiated smoking (because my friends/classmates smoked, because one of my family members smoked, because my teachers smoked, to experiment with new experiences, because it is trendy, to feel older, to meet people or to flirt, and other); reasons why they currently smoke (for weight control, to reduce stress/relax, for socializing, because my friend/family smokes, because it is trendy, for pleasure,

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because I could not quit, and other); number of cigarettes smoked per day (classified as <10, 10–19, and ≥ 20); time (in minutes) to first cigarette after waking up (≤ 5 , 6–30, 31–60, or > 60); if they have seriously tried to quit smoking in the last year (yes or no); number of attempts to quit of at least 24 hours in the last year (1 or ≥ 2); and if they have the intention to quit or cut back in the following year (yes or no).

Cigarettes per day (CPD) smoked and time to first cigarette (TFC) allowed us to calculate the heaviness of smoking index (HSI) to describe their nicotine dependence using the following scoring: <10 CPD = 1 point (p), 10–19 CPD = 2 p, CPD ≥ 20 = 3 p; and TFC: ≥ 5 = 3 p, 6–30 = 2 p, 31–60 = 1 p, or > 60 = 0 p. We summed the scores from both variables to obtain a score between 0 and 6, and considered an HSI from 0 to 2 as “low nicotine dependence”, 3–4 as “medium”, and 5–6 as “high” (Chabrol et al., 2005).

In addition, we collected the sociodemographic characteristics of all participants at baseline and follow-up. Baseline sociodemographic characteristics included sex (male, female); age (≤ 19 years, 20–24 years, or ≥ 25 years); year of degree (first, second, third, or fourth year); place of birth (Catalonia or outside of Catalonia); location of the nursing school (Barcelona or outside of Barcelona), and type of university (public, private with public funding, or private). At follow-up we ascertained whether they had finished the nursing degree (yes or no); occupation (nursing student, nurse, or other); year of degree for continuing students (second or third, or fourth); work area for recently graduated employed nurses (hospital or other) and type of institution they worked (public, private, and private with public funding); if they were living with family or were independent; household monthly income ($\leq \text{€}1500$, $\text{€}1501$ – $\text{€}3000$, or $> \text{€}3000$); and marital status (single, married or cohabiting, divorced, or widowed).

The main dependent variable was tobacco use transition between baseline and follow-up. Six transitions were established: (i) from daily to nondaily smoking; (ii) from nondaily to daily

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smoking; (iii) from exclusive cigarette use (only MF and/or RYO cigarettes) to polytobacco use (MF and/or RYO cigarettes with other/s product/s); (iv) from polytobacco use to exclusive cigarette use; (v) between products; (vi) reduce cigarette consumption by ≥ 5 CPD; and (vii) quit smoking. Participants who did not change their tobacco use patterns between baseline and follow-up were defined as *continued as a daily smoker*, *continued as a nondaily smoker*, *continued as an exclusive cigarette user*, *continued as a polytobacco user*, or *continued as a current smoker*. Those who reduced cigarette consumption by ≥ 5 CPD were compared with those who reduced their consumption by fewer than 5 CPD, increased the number of consumed cigarettes, or did not change the number of CPD.

The independent variables included those related to the tobacco use pattern and sociodemographic characteristics at baseline and follow-up.

Data Analysis

To analyze the predictors of reducing cigarette consumption and quitting smoking, we performed multilevel logistic regression models to obtain both crude (cOR) and adjusted (aOR) odds ratios and their 95% confidence intervals (CI). For both transitions, the adjusted models included sex, baseline age, and the significant variables identified in the bivariate analysis, except number of CPD since it was collinear with the baseline smoking status. Predictors of transition from daily to nondaily user, from nondaily to daily smoking, from exclusive cigarette use to polytobacco use, from polytobacco use to exclusive cigarette use, and between products were not assessed, due to the small number of participants that experienced these transitions. All tests were two-tailed and the statistical significance was set at $p < 0.05$. All analyses were performed using the statistical package IBM SPSS Statistics version 25.

Ethical Considerations

The study protocol was approved by the Ethics Committee of the Hospital Universitari de Bellvitge (PR239/18). Informed consent was obtained from all individual participants in the study.

RESULTS

Description of the sample

At baseline, 4,381 nursing students completed the survey. Of them, 1,288 (29.7% of the sample) reported being current smokers, of whom 61.9% were daily smokers and 38.1% were nondaily smokers. Of all current smokers at baseline, 276 (21.4%) filled in the follow-up survey, with 198 (71.7%) continued as current smokers while 78 (28.3%) had quit smoking. The percentages of daily and nondaily smokers at follow-up were 70.7% and 29.3%, respectively. [Table S1](#) (Supplementary material) shows the baseline and follow-up characteristics of the cohort by sex and baseline smoking status. Overall, 87.3% of the participants followed were women, and 82.4% were aged ≤ 24 years at baseline. At follow-up, 103 (37.3%) were nursing students and 161 (58.3%) were nurses. There were no significant differences by sex among the participants. At baseline, participants aged ≤ 19 years were more likely to be nondaily smokers, while those aged ≥ 20 years were more likely to be daily smokers ($p < 0.001$).

Tobacco use patterns at follow-up

The majority of current smokers at follow-up, whether daily or nondaily, exclusively used MF and/or RYO cigarettes (76.2% and 67.9%, respectively), consumed less than 10 CPD (87.5% and 100%, respectively), and had low nicotine dependence (76.5% and 100%, respectively). Polytobacco use was more frequent among daily and nondaily smokers using cannabis (14.0% and 13.2%, respectively) and water pipes (9.8% and 24.5%, respectively), with the latter, being

more frequent among nondaily smokers than among daily smokers ($p = 0.008$). Nondaily smokers consumed on average fewer CPD than daily smokers ($p < 0.01$). A higher proportion of daily smokers than nondaily ones reported intending to cut back their cigarette consumption (75.0% vs. 47.6%, $p < 0.01$) (Supplementary material: Table S2). Additionally, participants who had completed their nursing degree (either those who were nurses or had other situation) had a greater proportion of exclusive cigarette use; in contrast, those who were still nursing students had a higher prevalence of polytobacco use ($p < 0.001$) (Supplementary material: Table S3).

Tobacco use transitions between the baseline and the 3-year follow-up

As presented in Table 1, of all daily smokers at baseline, 12.1% transitioned to being nondaily smokers at follow-up. A high proportion of daily smokers with low nicotine dependence transitioned to nondaily smoking ($p = 0.012$). Although there were no differences by type of product used, a product-by-product analysis showed a higher proportion of daily smokers who transitioned to being nondaily smokers among those who used cigarettes and cannabis concurrently ($p = 0.011$). Moreover, the lower the number of CPD, the greater the proportion of daily smokers who transitioned to being nondaily smokers ($p < 0.05$). From the total of nondaily smokers at baseline, 36.2% ($n = 21$) transitioned to being daily smokers at follow-up. Participants who had no intention to quit at baseline had a high proportion of nondaily smokers who transitioned to being daily smokers ($p < 0.05$).

Table 2 presents the transitions in type of tobacco use between baseline and follow-up. Of all exclusive cigarette users at baseline, 14.2% had transitioned to polytobacco use at follow-up. Compared with other age groups, a higher proportion (20.0%) of exclusive cigarette users aged 20–24 at baseline shifted to polytobacco use at follow-up ($p = 0.027$). Overall, 48.4% of polytobacco users at baseline transitioned to exclusive cigarette use. A higher proportion of

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polytobacco users switched to exclusive cigarette use among participants in the second and third years of their degree studies than first and fourth years ($p = 0.012$). Furthermore, compared with those who continued as polytobacco users, a lower proportion of participants who reported initiating smoking for reasons other than having a peer/family smoker transitioned to exclusive cigarette use ($p = 0.013$).

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Table 1: Baseline sociodemographic characteristics and tobacco use patterns of participants who transitioned from daily to nondaily smoking and from nondaily to daily smoking

	Transitioned to nondaily smoking ^a			Transitioned to daily smoking ^b		
	<i>n</i>	%	<i>p</i> -value	<i>n</i>	%	<i>p</i> -value
Overall	17	12.1		21	36.2	
Sex			0.523			0.160
Male	2	18.2		6	54.5	
Female	15	11.6		15	31.9	
Age group			0.198			0.681
≤19 years	6	18.8		11	42.3	
20–24 years	10	12.7		8	30.8	
≥25 years	1	3.6		2	40.0	
Year in nursing school			0.149			0.070
First	6	13.0		10	40.0	
Second	7	22.6		8	53.3	
Third	3	8.3		0	0	
Fourth	1	3.8		2	25.0	
Age at smoking initiation			0.513			0.702
<17 years	11	11.0		13	38.2	
≥17 years	6	15.0		8	33.3	
Reasons why they initiated smoking^c						
Because my peer/family smoked	12	11.8	1.000	11	36.7	1.000
Other	9	9.4	0.166	16	36.4	1.000
Reasons why they currently smoke^c						
To reduce stress/relax	10	10.9	0.586	11	44.0	0.408
For pleasure	14	13.2	0.571	14	40.0	0.579
Other	8	10.5	0.607	5	20.8	0.054
Type of product used			0.088			0.783
Exclusive cigarette use	9	9.0		12	34.3	
Polytobacco use	8	20.0		9	39.1	
Number of cigarettes per day			0.017			0.105
<10	5	25.0		15	32.6	
10–19	10	16.1		6	60.0	
≥20	2	3.4		-		
Heaviness of smoking index			0.012			0.915
Low (0–2)	15	19.5		20	36.4	
Medium and high (3–6)	2	4.1		1	33.3	
Quit attempts in the last year			0.348			0.264
Yes	3	7.9		6	50.0	
No	14	13.7		15	32.6	
Number of quit attempts			0.718			0.294
1	1	6.3		3	75.0	
≥2	2	9.5		2	40.0	
Are you seriously thinking about quitting now?			0.055			0.023
Yes	4	26.7		1	9.1	
No	12	9.8		20	46.5	
Are you thinking about cutting back consumption?			0.859			0.783
Yes	10	11.2		10	35.7	
No	6	12.2		11	39.3	

^aCompared with "continued as daily smokers" (*n* = 123)

^bCompared with "continued as nondaily smokers" (*n* = 37)

^cMultiple responses were accepted

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Table 2: Baseline sociodemographic characteristics and tobacco use patterns of participants who transitioned from exclusive cigarette use to polytobacco use and from polytobacco use to exclusive cigarette use

	Transitioned to polytobacco use ^a			Transitioned to exclusive cigarette use ^b		
	<i>n</i>	%	<i>p</i> -value	<i>n</i>	%	<i>p</i> -value
Overall	19	14.2		30	48.4	
Sex			0.053			0.418
Male	5	31.3		4	66.7	
Female	14	11.9		26	46.4	
Age group			0.027			0.212
≤19 years	5	15.2		9	36.0	
20–24 years	14	20.0		18	54.5	
≥25 years	0	0		3	75.0	
Year in nursing school			0.404			0.012
First	8	22.9		11	31.4	
Second	3	9.1		10	76.9	
Third	4	11.4		6	75.0	
Fourth	4	14.3		3	50.0	
Age at smoking initiation			0.469			0.659
<17 years	14	15.7		21	46.7	
≥17 years	5	11.1		9	52.9	
Reasons why they initiated smoking^c						
Because my peer/family smoked	16	17.4	0.115	22	55.0	0.160
Other	10	10.9	0.104	18	39.1	0.013
Reasons why they currently smoke^c						
To reduce stress/relax	10	12.5	0.470	21	56.8	0.109
For pleasure	14	15.2	0.646	24	51.1	0.455
Other	12	17.4	0.272	12	38.7	0.127
Smoking status			0.399			0.160
Nondaily smoker	16	16.2		22	55.0	
Daily smoker	3	8.6		8	36.4	
Number of cigarettes per day			0.753			0.398
<10	6	13.6		12	57.1	
10–19	6	12.0		8	38.1	
≥20	7	17.5		10	55.6	
Heaviness of smoking index			0.920			0.871
Low (0–2)	12	14.0		21	47.7	
Medium and high (3–6)	7	14.6		9	50.0	
Quit attempts in the last year			0.423			0.176
Yes	7	17.9		7	70.0	
No	12	12.6		23	44.2	
Number of quit attempts			0.791			0.495
1	3	16.7		2	100	
≥2	4	20.0		4	80.0	
Are you seriously thinking about quitting now?			0.332			0.492
Yes	13	15.7		17	53.1	
No	6	12.5		12	41.4	
Are you thinking about cutting back consumption?			0.620			0.359
Yes	13	13.3		17	16.7	
No	6	9.2		12	16.9	

^aCompared with "continued as exclusive cigarette users" (*n* = 115)

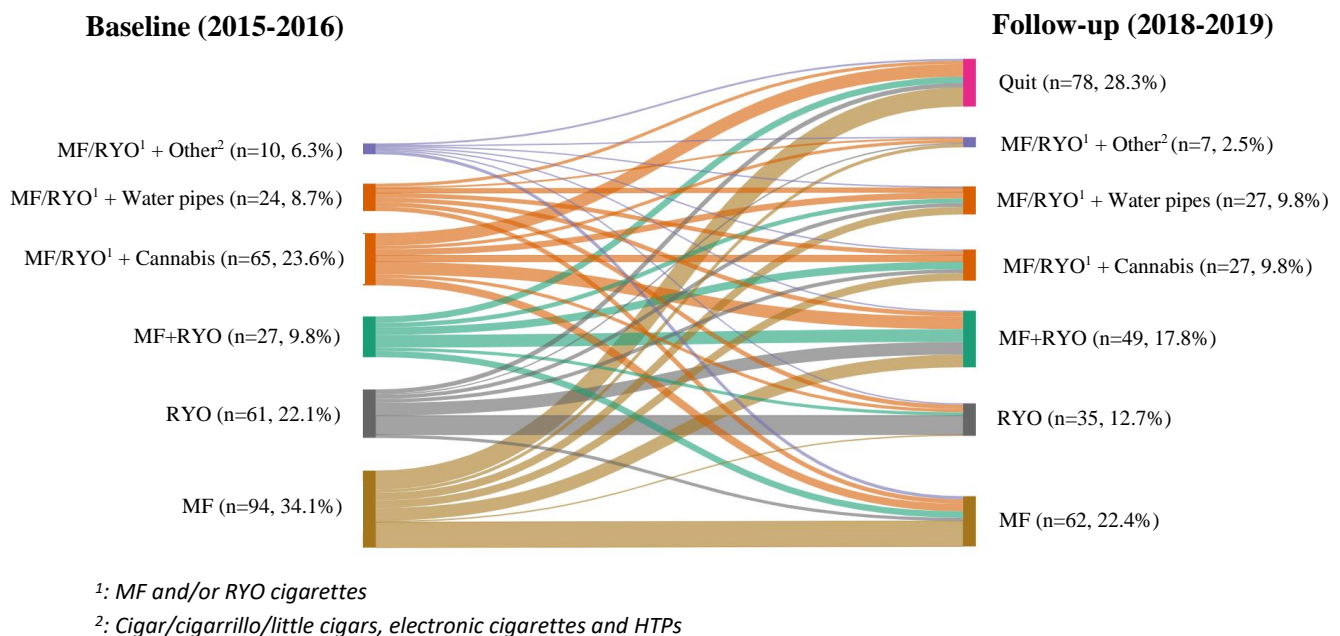
^bCompared with "continued as polytobacco users" (*n* = 32)

^cMultiple responses were accepted

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Figure 1 displays the product use between baseline and follow-up. At baseline, the most common products used were of MF cigarettes (34.1%), MF and/or RYO cigarettes and cannabis (23.6%), and RYO cigarettes (22.1%). At follow-up, the exclusive use of MF cigarettes continued to be the most common product used (22.4%); however, the prevalence of concurrent use of MF and/or RYO cigarettes with cannabis decreased to 9.8%, while MF and RYO cigarette use increased (17.8%). The exclusive use of RYO cigarettes continued as the third most common product used (12.7%). The prevalence of concurrent use of MF and/or RYO cigarettes and water pipes slightly increased from 8.7% to 9.8% (13.6% considering only those who were current smokers at follow-up). Most polytobacco users of MF and/or RYO cigarettes and e-cigarettes or cigars/cigarillos/little cigars (70%) switched to using only MF cigarettes; however, the prevalence of HTPs use increased at follow-up. Finally, users of MF cigarettes at baseline had the highest percentage of quitters at follow-up (26%), whereas users of water pipes had the lowest percentage of quitters (4.2%).

Figure 1: Transitions in product use among smokers in a cohort of nursing students from baseline (2015–2016) to follow-up (2018–2019)



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As shown in Table 3, 60.8% of current smokers (both daily and nondaily smokers) at baseline reduced their cigarette consumption by ≥ 5 CPD at follow-up. The proportion of smokers who reduced their cigarette consumption was higher among participants aged ≥ 20 years compared with those aged ≤ 19 years ($p = 0.022$); among those who started smoking before the age of 17 compared with those who started after 17 years old ($p = 0.013$); among those who reported initiating smoking because they had a peer/family smoker compared with those who had not reported this reason ($p = 0.028$); among those who reported continuing smoking to reduce stress or relax compared with those who not reported it ($p = 0.024$); among those who were daily smokers compared with nondaily smokers ($p < 0.001$); among those who smoked more CPD ($p < 0.001$); and among those with medium and high nicotine dependence compared with those with low dependence ($p < 0.01$).

Among all current smokers at baseline, 28.3% had quit smoking at follow-up (Table 4). The proportion of recent quitters was higher among participants who reported smoking at baseline for other reason than to reduce stress or relax ($p = 0.006$); among those who were nondaily smokers compared with daily smokers ($p < 0.001$); among those who had low cigarette consumption (< 10 CPD) compared with those who consumed ≥ 10 CPD ($p < 0.001$); among those who had low nicotine dependence compared with those who had medium and high dependence ($p = 0.036$); and among those who had no intention to cut back consumption compared with those who intended to reduce consumption ($p = 0.026$).

Predictors of tobacco use transition

We found that being a nondaily smoker and having lower nicotine dependence were inversely associated with reducing cigarette consumption (by ≥ 5 CPD) compared with being a daily smoker (aOR = 0.13, 95% CI 0.06–0.30) and having medium and high dependence (aOR =

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0.38, 95% CI 0.16–0.89). Otherwise, nondaily smoking was the only predictor of quitting smoking (aOR = 2.88, 95% CI 1.49–5.58).

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Table 3: Predictors of reducing cigarette consumption by ≥ 5 cig/day according to baseline sociodemographic characteristics and tobacco use patterns

	Reduced cigarette consumption by ≥ 5 cig/day ^a				
	n	%	p-value	Adjusted OR ^b	95% CI
Overall	115	60.8			
Sex			0.676		
Male	12	54.5		2.34	(0.66–8.31)
Female	103	59.3		1.00	-
Age group			0.022		
≤ 19 years	25	43.9		0.80	(0.27–2.42)
20–24 years	67	63.8		1.28	(0.47–3.53)
≥ 25 years	22	68.8		1.00	-
Year in nursing school			0.805		
First	40	56.3		-	-
Second	26	57.8		-	-
Third	28	65.1		-	-
Fourth	21	61.8		-	-
Age at smoking initiation			0.013		
< 17 years	86	64.7		2.01	(0.96–4.25)
≥ 17 years	29	46.0		1.00	-
Reasons why they initiated smoking^c					
Having peer/family smoker	84	64.1	0.028	1.30	(0.62–2.70)
Other	82	59.0	0.887	-	-
Reasons why they currently smoke^c					
To reduce stress/relax	76	65.5	0.024	1.17	(0.58–2.39)
For pleasure	88	62.9	0.079	-	-
Other	64	64.6	0.086	-	-
Smoking status			<0.001		
Nondaily smoker	12	21.1		0.13	(0.06–0.30)
Daily smoker	103	74.1		1.00	-
Type of tobacco use			0.542		
Exclusive cigarette use	80	60.2		-	-
Polytobacco use	35	55.6		-	-
Number of cigarettes per day			<0.001		
< 10	8	12.3		-	-
10–19	56	77.8		-	-
≥ 20	51	89.5		-	-
Heaviness of smoking index			<0.001		
Low (0–2)	61	46.6		0.38	(0.16–0.89)
Medium and high (3–6)	54	83.1		1.00	-
Quit attempts in the last year			0.802		
Yes	28	57.1		-	-
No	87	59.2		-	-
Number of quit attempts			0.805		
1	11	57.9		-	-
≥ 2	16	61.5		-	-
Are you seriously thinking about quitting now?			0.247		
Yes	13	50.0		-	-
No	101	62.0		-	-
Are you thinking about cutting back consumption?			0.523		
Yes	71	61.2		-	-
No	43	56.6		-	-

^aCompared with those who reduced their consumption by < 5 cig/day, increased their consumption, or who did not change their consumption (n = 81)

^bOR adjusted for sex, age group, age at smoking initiation, having initiated smoking because they have a family/peer smoker, current smoking to reduce stress/relax, smoking status, and heaviness of smoking index

^cMultiple responses were accepted

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Table 4: Predictors of smoking cessation in a cohort of nursing students according to baseline sociodemographic characteristics and tobacco use patterns

			Recent quitters ^a	
	n	%	p-value	Adjusted OR ^b 95% CI
Overall	78	28.3		
Sex			0.212	
Male	13	37.1		1.37 (0.59–3.17)
Female	65	27.0		1.00 -
Age group			0.191	
≤19 years	30	34.1		0.86 (0.36–2.06)
20–24 years	32	23.4		0.57 (0.25–1.26)
≥25 years	15	31.3		1.00 -
Year in nursing school			0.906	
First	28	28.3		- -
Second	21	31.3		- -
Third	15	25.4		- -
Fourth	13	27.7		- -
Age at smoking initiation			0.614	
<17 years	49	26.8		- -
≥17 years	27	29.7		- -
Reasons why they have initiated smoking^c				
Having a peer/family smoker	48	26.7	0.421	- -
Other	53	27.5	0.653	- -
Reasons why they currently smoke^c				
To reduce stress/relax	32	21.5	0.006	0.63 (0.35–1.13)
For pleasure	51	26.6	0.314	- -
Other	34	25.4	0.301	- -
Smoking status			<0.001	
Nondaily smoker	48	45.3		2.88 (1.49–5.58)
Daily smoker	30	17.6		1.00 -
Type of tobacco use			0.222	
Exclusive cigarette use	59	30.4		- -
Polytobacco use	19	23.2		- -
Number of cigarettes per day			<0.001	
<10	48	41.4		- -
10–19	16	18.2		- -
≥20	14	19.4		- -
Heaviness of smoking index			0.036	
Low (0–2)	62	32.0		1.00 (0.47–2.12)
Medium and high (3–6)	16	19.5		1.00 -
Quit attempts in the last year			0.902	
Yes	20	28.6		- -
No	57	27.8		- -
Number of quit attempts in the last year			0.279	
1	10	33.3		- -
≥2	7	21.2		- -
Are you seriously thinking about quitting now?			0.823	
Yes	11	29.7		- -
No	64	27.9		- -
Are you thinking about cutting back consumption?			0.026	
Yes	34	22.5		0.69 (0.38–1.25)
No	41	34.7		1.00 -

^aCompared with “continued as smokers” (n = 198)

^bOR adjusted for sex, age group, current smoking to reduce stress/relax, smoking status, heaviness of smoking index and thinking about cutting back consumption

^cMultiple responses were accepted

DISCUSSION

This study among smoker nursing students provides a longitudinal overview of changes in smokers' tobacco use patterns over a 3-year period and identifies predictors of transitions in tobacco use patterns. The study found that 12.1% of daily smokers at baseline transitioned to being nondaily smokers at follow-up, and more than one-third of nondaily smokers shifted to being daily smokers. Of all the exclusive cigarette users, 14.2% transitioned to polytobacco use, and of all the polytobacco users, almost half transitioned to exclusive cigarette use. Furthermore, among all current smokers (including both daily and nondaily smokers), two-thirds reduced their cigarette consumption by at least 5 CPD and almost one-third had quit smoking. Finally, whereas being a nondaily smoker and having lower nicotine dependence were inversely associated with reducing cigarette consumption, being a nondaily smoker was directly associated with quitting smoking at follow-up.

This range of tobacco use transitions is consistent with existing evidence among college students. This suggests that nursing students, similarly to students in other disciplines, also experience several changes in tobacco use patterns during their training (Caldeira et al., 2021; Clendennen et al., 2019; Haardöfer et al., 2016). Furthermore, polytobacco and alternative tobacco product use were also observed among smokers of this cohort of nursing students, with the former being more prevalent among those who were still enrolled in nursing school than among those who had graduated. This finding is in line with the results of Butler et al., who found that lower-level undergraduates were more likely to be polytobacco users (Butler et al., 2016). Additionally, other research points to young college students being more prone to using alternative tobacco products than older students (Enofe et al., 2014).

The diverse tobacco use transitions experienced during their college years and the greater prevalence of polytobacco use and alternative tobacco products use among university students

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can be explained by multiple psychosocial factors. First, college students generally seek to experience new sensations, they are influenced by their peers and they are vulnerable to situations that cause anxiety, which may lead them to consume several emerging tobacco products (Valencia-Arias et al., 2021). Secondly, college students are more exposed to tobacco industry messages than other individuals, which increases their probability of using tobacco products (Hair et al., 2017). Finally, social smoking is highly prevalent among college students, which may increase the use of alternative tobacco product use and decrease their perceived addiction (Buu et al., 2020). Poly tobacco and alternative tobacco product users are as likely as exclusive cigarette users to intend to quit smoking, which highlights the need to implement tobacco prevention and cessation strategies during college years, especially during the first years, before the consolidations of smoking behaviors (Butler et al., 2018; Enofe et al., 2014).

Regarding predictors of tobacco use transition, being a nondaily smoker and having lower nicotine dependence were determinant factors for reducing cigarette consumption and quitting smoking in this cohort of smoker nursing students. Nondaily smokers had a lower probability of reducing their cigarette consumption but a higher probability of quitting smoking. Likewise, the proportion of nondaily smokers who transitioned to being daily smokers (36.2%) was tripled that of daily smokers who switched to being nondaily smokers (12.1%). Based on these findings, we consider that nondaily smokers in this cohort showed less smoking pattern stability than daily smokers, which is consistent with the results of previous longitudinal studies carried out among college students and other populations (Caldeira et al., 2012; Klein et al., 2013; Swayampakala et al., 2018). This lower smoking pattern stability may be due to the fact that nondaily smokers are a heterogeneous group, presenting different behavioral and psychosocial smoking characteristics (frequency and quantity of use, social smoking, perceived addiction, etc.) (Edwards et al., 2010). Although most nondaily smokers have low nicotine dependence, which is a well-known predictor of quitting smoking, their lower perceived addiction and other

psychosocial factors may inhibit them from reducing cigarette consumption and, probably, lead to an increase in consumption until they become daily smokers (Fernández et al., 2015; Pardavila-Belio et al., 2019).

While more longitudinal studies are required, these results demonstrate the need for improved understanding of potential predictors that may disrupt a pattern of escalating smoking and addiction during college years, as both nondaily and daily smokers are in a determinant stage to consolidate their tobacco use behaviors. Additionally, current tobacco use behaviors among college students indicate the need at baseline to implement tobacco control strategies in universities early and urgently. The implementation of tobacco-free campuses has proven to be effective in reducing the overall prevalence of tobacco use and secondhand exposure among college students, although their effectiveness may vary by product (Nyman et al., 2022). Therefore, a comprehensive enforcement strategy that includes tobacco-free campuses, tobacco prevention and cessation programs, and restrictions of tobacco sales, advertising, and promotion could be effective in reducing tobacco use among nursing students (CDC, 2014; NCCDPHP, 2012).

Limitations and Strengths

While this study had a large number of participants at baseline, three-quarters of the sample was lost to follow-up and the results may be biased due to this attrition. Lost participants were more likely to be male, aged >20 years, and current smokers at baseline. In addition, the study included only MF and RYO cigarettes in the definition of daily and nondaily smokers, and this may have resulted in low sample sizes in the tobacco use transition groups due to the reduced number of smokers. While the cohort was restricted to nursing schools in Catalonia, the participants' characteristics do not appear to differ from those of nursing students from other regions of Spain and Europe (Fernández et al., 2020).

To the best of our knowledge, this is the first longitudinal study in Europe that has studied the predictors of tobacco use transitions in nursing students. The study distinguished between levels of smoking intensity, analyzing nondaily and daily smokers separately. In addition, the survey also explored the use of other tobacco products, such as e-cigarettes and water pipes, and cannabis. Finally, we included several individual and contextual sociodemographic characteristics and variables related to tobacco use patterns as potential predictors of changes in smoking habits.

CONCLUSIONS

Nursing students who smoked, especially those who were nondaily smokers and polytobacco users at baseline, underwent several transitions in their tobacco product use during the follow-up period, either by increasing their consumption, reducing it, or quitting smoking. Being a nondaily smoker and having lower nicotine dependence were inversely associated with reducing cigarette consumption by ≥ 5 CPD, and only being a nondaily smoker predicted tobacco cessation at follow-up. These findings suggest that tobacco use behavior in this cohort is unstable and emphasize the urgent need for the implementation of a comprehensive strategy to reduce the use of conventional and alternative tobacco products on university campuses.

Conflict of Interest Statement

The authors declare that they have no competing financial interests or personal relationships that could appear to influence the work reported in this paper.

Ethical Approval

The study was approved by the Ethics and Clinical Research Committee of the Bellvitge University Hospital (PR239/18).

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CRedit Authorship Contribution Statement

Kenza Laroussy, Esteve Fernández and Cristina Martinez: Study conception and design, Data analysis and interpretation and Drafting of the article. Yolanda Castellano and Judith Saura: Data analysis and interpretation. Marcela Fu: Study conception and design and Critical revision

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of the article. Antoni Baena: Data collection. Ariadna Feliu, Armando Peruga and Judith Roca: Critical revision of the article. Mercè Margalef: Project administration. Olena Tigova: Critical revision of the article. Jordi Galimany, Montserrat Puig, Albert Bueno and Antonio López: Data collection. Carmen Moreno: Resources and Funding acquisition.

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ARTÍCULO VI

Predictors of acquiring positive attitudes and training towards tobacco control among nursing students: A prospective longitudinal study

PREDICTORS OF ACQUIRING POSITIVE ATTITUDES AND TRAINING TOWARDS TOBACCO CONTROL AMONG NURSING STUDENTS: A PROSPECTIVE LONGITUDINAL STUDY

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Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Approval

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PREDICTORS OF ACQUIRING POSITIVE ATTITUDES AND TRAINING TOWARDS TOBACCO CONTROL AMONG NURSING STUDENTS: A PROSPECTIVE STUDY

ABSTRACT

Background: The prevalence of smoking among nursing students and their knowledge and attitudes towards tobacco use are important factors in ensuring appropriate management of tobacco dependence in the future healthcare workforce.

Objective: To evaluate the predictors of acquiring positive attitudes and receiving training in tobacco control within a cohort of nursing students.

Design: Prospective longitudinal study.

Settings: Catalonia (Spain).

Participants: 1,097 nursing students.

Methods: We examined predictors of acquiring positive attitudes (transitioning from disagreeing to agreeing with several tobacco-related statements) and training (transitioning from reporting having received no education on different tobacco-related topics to reporting having received it) between the baseline (2015–2016) and the three-year follow-up (2018–2019) using logistic regression models.

Results: Students from the last years of school at baseline were less likely to acquire positive attitudes toward the exemplary role of nursing students in tobacco control (aOR = 0.64, 95%CI 0.42–0.96) and to receive most of the tobacco-related training at follow-up (all aOR < 0.50), compared to participants from first years. Conversely, former smokers had a higher probability of acquiring positive attitudes towards the exemplary role of health professionals (aOR = 2.12, 95% CI 1.06–4.21) and, along with never smokers, of transitioning to agreeing that nursing students' have this role (aOR = 3.00, 95%CI 1.56–5.75 and aOR = 3.19, 95%CI 2.03–5.02, respectively), compared to current smokers. Never smokers were less likely to acquire training about other pharmacological treatments (aOR = 0.58, 95%CI 0.40–0.83) and to consider themselves capable of helping quit smoking (aOR = 0.66, 95%CI 0.47–0.92) than current smokers.

Conclusions: Being a student from the first years and former smoker were predictors of acquiring positive attitudes while being current smoker was for acquiring training in tobacco control in this cohort of nursing students. The findings highlight the need to

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strengthen attitudes and training of nursing students towards tobacco control by implementing effective evidence-based strategies that prevent tobacco use, encourage smoking cessation, and increase their perception of role models and tobacco-related training.

Keywords: attitude, longitudinal studies, nursing education, nursing students, tobacco use, university.

BACKGROUND

Tobacco use remains the leading cause of preventable mortality and morbidity worldwide, causing more than 8.7 million deaths annually (WHO, 2023). Over the past decades, countries have made considerable progress in tobacco prevention and control, which has contributed to a decrease in the overall prevalence of tobacco use (WHO, 2023). However, there are still several cost-effective measures that are under-implemented, most notably the smoking cessation interventions (Duaso and Ducan 2012; Feliu et al., 2018; WHO, 2023).

Health professionals have a crucial role to play in tobacco prevention and control by serving as educators, social, welfare agents, and role models (WHO Tobacco Free Initiative, 2005). The World Health Organization (WHO), therefore, encourages health professionals to promote healthy behaviors, educate and raise awareness about the health consequences of tobacco use and exposure to second-hand smoke (SHS), implement tobacco cessation interventions, promote tobacco-free environments, prohibit tobacco sales and promotion activities, and finally, influence health and educational institutions to include tobacco control in their curricula (WHO Tobacco Free Initiative, 2005). Among healthcare professionals, nurses, as the largest workforce, have a significant impact on achieving effective tobacco dependence management (WHO Tobacco Free Initiative, 2005; RCN, 2012). However, as several cross-sectional studies have shown, their prevalence of tobacco use and their level of implementation of smoking cessation interventions are not adequate (Chandrakumar and Adams, 2015; Katz et al., 2016; Duaso et al., 2017; Martínez et al., 2017; Pianori et al., 2017; Mak et al., 2018; Nilan et al., 2019).

A systematic review with meta-analysis that included 229 studies worldwide found an overall prevalence of tobacco use among healthcare professionals of 21%, with the highest prevalence among nurses (24%), followed by physicians (20%), dentists (18%), and pharmacists (14%) (Nilan et al., 2019). Another systematic review with meta-analysis, which included studies conducted only among nurses, showed variability in the prevalence of use in this group, ranging from 4% to 47.1%, with the higher in European countries, especially in Spain. In the Spanish studies included in the review, the proportion of smoking nurses ranged from 26.7% to 31.2%, which was similar to or, in

some cases, higher than that of the general population at the time of the study (Duaso et al., 2017).

There is broad consensus about the deficient implementation of tobacco cessation interventions by nurses (Chandrakumar and Adams, 2015; Katz et al., 2016; Duaso et al., 2017; Martínez et al., 2017; Pianori et al., 2017). Specifically, studies indicate that many nurses ask patients about their tobacco use and sometimes advise them, but few assess, offer help, and follow-up with them (Chandrakumar and Adams, 2015; Duaso et al., 2017; Martínez et al., 2017; Pianori et al., 2017; Mak et al., 2018). The main barriers to implementing smoking cessation interventions include nurses' tobacco use, lack of knowledge about smoking, lack of time and resources, and organizational difficulties (Chandrakumar and Adams, 2015; Katz et al., 2016; Duaso et al., 2017; Martínez et al., 2017; Mak et al., 2018). In their systematic review, Duaso et al. also showed that nurses who smoke were less likely to implement tobacco cessation interventions as they were less inclined to advise patients to quit smoking and to arrange follow up with them compared to those who did not smoke (Duaso et al., 2017). According to these results, a study conducted among healthcare professionals in Italy revealed that this association is also bidirectional, as nurses' beliefs and attitudes can also influence their own tobacco use (Pianori et al., 2017). In this regard, they found a higher risk of smoking among nurses who did not consider smoking as the main cause of preventable deaths and those who were against the "No Smoking" laws (Pianori et al., 2017).

Among the barriers and facilitators for tobacco cessation implementation, attitudes and training are recognized as pivotal factors. While numerous cross-sectional studies have shed light on these aspects, there remains a significant gap in our understanding of how nursing students progress in these dimensions during their education years. Consequently, there is a compelling need to investigate the evolution of these dimensions over the time to explore factors to contribute to their enhancement or decline among nursing students following as they advance through their graduate education. As such, the primary objective of this study is to evaluate the predictors of acquiring positive attitudes and receiving training in tobacco control within a cohort of nursing students.

METHODS

Design

We conducted a prospective longitudinal study involving a cohort of 4,381 nursing students from all nursing schools in Catalonia (Spain) between the academic years 2015–2016 (baseline) and 2018–2019 (follow-up).

Participants and recruitment

The inception cohort comprised 4,381 nursing students, representing 57.2% of all nursing students enrolled in the 15 schools of nursing across Catalonia. Details about the baseline study have been previously reported elsewhere (Martínez et al., 2019).

At baseline, nursing students who agreed to participate in the study provided written informed consent and completed a paper-and-pencil questionnaire during their class sessions at their respective nursing schools. The written informed consent included an option for participants to voluntarily provide their permission and email addresses for future follow-up communication. For the follow-up, we contacted to all eligible participants using the provided email addresses, inviting them to complete an online follow-up questionnaire. Eligible participants were defined as nursing students who: (i) had completed the baseline questionnaire, (ii) had given informed consent for follow-up, and (iii) had provided valid contact information. For this study, we included the participants who had responded to both the baseline and follow-up questions regarding their smoking status, attitudes, and training received related to tobacco control.

Instrument

At baseline, we administered a self-administered questionnaire in a paper-and-pencil format to all participants. At the follow-up, we employed an online version of the baseline questionnaire, launched through the LimeSurvey platform. We carried out two pilot tests to ensure the validity of the follow-up online questionnaire; the first involved 20 collaborating researchers from different areas, followed by a second pilot test with 50 study participants (see Laroussy et al., 2022).

Both the baseline and follow-up questionnaires explored the following areas: (i) the use of tobacco products, e-cigarettes, and cannabis, (ii) the level of knowledge about tobacco-related topics, (iii) attitudes toward the role of health professionals and health

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organizations in tobacco control, and (iv) training related to tobacco dependence and cessation treatment received during the Bachelor's Degree in Nursing.

Statements about participants' attitudes toward the role of health professionals and health organizations in tobacco control included their opinions on the following: (i) whether health professionals should set an example and not smoke; (ii) whether nursing students should set an example and not smoke; (iii) whether health professionals should receive training to help patients to quit smoking; (iv) whether health professionals should routinely ask and document tobacco use in patients' medical record; (v) whether health professionals should regularly advise their smoking patients to quit; (vi) whether the chances of a smoker quitting increase if health professional advises it; (vii) whether smoking health professionals tend to advise their patients less to quit smoking; and (viii) whether the Public Health System should fund effective smoking cessation treatments. A 5-point Likert scale ("totally agree," "agree," "neither agree nor disagree," "disagree," "totally disagree") was used to collect this information. For this study, the first two responses were combined as "agree," while the remaining responses were combined as "disagree".

Questions about training in tobacco dependence and cessation treatment received during the Bachelor's Degree in Nursing included the following: (i) has somebody in class, seminar, or practice talked about risks of smoking?; (ii) has someone in your class explained the difference between an active smoker and a passive smoker?; (iii) have you discussed in any class, seminar, or practice about the reasons why people smoke?; (iv) have you been taught about the importance of recording the tobacco use in the patient's medical history?; (v) have you been trained to help patients quit smoking?; (vi) have you been instructed about the importance of providing educational material to support patients who want to quit smoking?; (vii) are you familiar with nicotine substitute treatment to quit smoking?; (viii) do you have knowledge of other pharmacological treatments to quit smoking?; and (ix) currently, do you believe you possess the knowledge and skills to help a smoker to quit?. The possible response options were "yes," "no," "do not know/do not answer." For this study, we combined "no" and "do not know/do not answer" to indicate "no".

Measures

The main dependent variable was the transition in attitudes and training between baseline and follow-up. In this way, participants who transitioned from reporting disagreement with one of the attitudes statements at baseline to reporting agreement with the same statement at follow-up were classified as *Acquired positive attitude*, while those who did not change their attitude (reporting disagreement at both baseline and follow-up) were classified as having *Not acquired positive attitude*. Regarding training transitions, participants who reported not having received a particular education at baseline but indicated that they had received it at follow-up were classified as *Acquired more training* while those who did not change their training (reporting not receiving it at both baseline and follow-up) were classified as having *Not acquired more training*.

The main independent variables explored were sex (male or female), year of enrollment in nursing school at baseline (first, second, third or fourth), and smoking status at baseline. Participants' smoking status was classified into three categories according to the current definitions provided by the Centers for Disease Control and Prevention and *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition*. Current smokers were individuals who have smoked or continue to smoke regularly within the last 6 months, either daily or nondaily, using tobacco products such as manufactured and/or roll-your-own cigarettes. Former smokers were individuals who have smoked at least 100 cigarettes in their lifetime but have remained abstinent in the last 6 months or longer. Never smokers were individuals who have not smoked more than 100 cigarettes in their lifetime and have not smoked in the last 30 days.

Data analysis

For bivariate analysis, we used a Chi-square test for qualitative variables. In addition, to analyze the probability of having positive attitudes, having received training, transitioning to positive attitudes, and transitioning to having received training at follow-up we performed logistic regression models to obtain both crude (cOR) and adjusted (aOR) odds ratios, and their 95% Confidence Interval (95%CI). The full-adjusted models included the following independent variables: sex, baseline year of school and baseline smoking status. Statistical significance was set at $p < 0.05$. All statistical analyses were performed using IBM SPSS Statistics version 25.

Ethical considerations

The study protocol received approval from the Ethics Committee of the Hospital Universitari de Bellvitge (PR239/18). As this study involved all nursing schools in Catalonia, we obtained approval from the responsible boards of the 15 Catalan universities and the Catalan Council of Official Nursing Colleges. Written informed consent was obtained from all participants at both baseline and follow-up stages of the study.

RESULTS

Description of participants

From the initial sample of 4,381 nursing students in the baseline study, we identified 3,440 eligible participants. Out of these, 1,252 (36.40%) participated in the follow-up study. However, we excluded 64 participants whose questionnaires could not be linked to their responses for the baseline survey and 91 participants who did not complete key questions in the follow-up survey. Therefore, the final analysis included 1,097 participants who had completed information at both baseline and follow-up.

The majority of participants were female (89.3%) and 48.8% were aged 20-24 years. There were significant differences in sex distribution among the three age groups, with a higher proportion of females observed among participants aged ≤ 19 years and a higher proportion of males among those aged ≥ 25 years (both $p < 0.01$). Regarding occupation at follow-up, 409 (37.3%) were still nursing students, 657 (59.9%) had finished university and become nurses, and 31 (2.8%) reported having a different situation (supplemental material: Table S1).

Changes in participants' attitudes towards health professionals' and health organizations' role in tobacco control and its predictors

The percentage of agreement increased for all the statements related to health professionals' and health organizations' roles in tobacco control between baseline and follow-up (Table 1). However, the proportion of participants who believed that nursing students should serve as examples and refrain from smoking (52.4%) remained lower than those who held the same belief for health professionals (63.2%). In both cases,

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participants who were still nursing students showed greater agreement with these two statements than those who had completed their studies and become registered nurses ($p < 0.05$). Former and never smokers at baseline were more likely to express support for the exemplary role of health professionals (aOR = 2.03, 95% CI 1.30–3.17 and aOR = 2.80, 95% CI 2.08–3.76, respectively) and the role of nursing students (aOR = 2.42, 95% CI 1.55–3.80 and aOR = 3.86, 95% CI 2.83–5.26, respectively) compared to current smokers (Figure 1). Most participants agreed that asking and routinely recording patients' tobacco use is recommended (89.0%); with never smokers having higher odds of considering it (aOR = 2.09, 95% CI 1.37–3.19). Participants in the last years of schooling (3rd and 4th) at baseline were less likely to agree with this statement compared to participants from the earlier years (1st and 2nd) (aOR = 0.67, 95% CI 0.45–0.99). Overall, 37.9% agreed that health professionals who smoke tend to advise their patients less to quit smoking, with never smokers having higher odds of agreeing with this statement than current smokers (aOR = 1.56, 95% CI 1.15–2.12). Participants who never smoked were also more likely to consider that health professionals should routinely advise their patients who smoke to quit smoking (aOR = 1.87, 95% CI 1.32–2.65), compared to current smokers. Participants who never smoked expressed higher support for the majority of assertions, making this variable the most significant predictor of having positive attitudes at follow-up.

Table 1. Participants' attitudes towards health professionals' and health organizations' role in tobacco control at follow-up (2018–2019) by independent variables

Attitudes	Overall		Sex				Occupation at follow-up				Smoking status at follow-up				p-value ^c			
			Male		Female		Nursing student		Nurse		Current smoker		Former smoker			Never Smoker		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%		n	%	
<i>Health professionals should set an example and not smoke</i>	671	63.2	68	59.1	603	63.7	267	67.1	388	61.0	<0.05	106	42.7	136	64.8	429	71.0	<0.001
<i>Nursing students should set an example and not smoke</i>	557	52.4	61	53.0	496	52.4	231	58.0	314	49.4	<0.05	68	27.4	109	51.9	380	62.9	<0.001
<i>Health professionals should be trained to help patients to quit smoking</i>	1,046	98.5	114	99.1	932	98.4	393	98.7	625	98.3	0.553	244	98.4	207	98.6	595	98.5	0.986
<i>Health professionals should routinely ask and record in medical history the tobacco use from their patients</i>	945	89.0	98	85.2	847	89.4	362	91.0	557	87.6	0.172	206	83.1	189	90.0	550	91.1	<0.05
<i>Health professionals should regularly advise their smoking patients to quit</i>	864	81.4	97	84.3	767	81.0	318	79.9	525	82.5	0.383	181	73.0	174	82.9	509	84.3	<0.01
<i>Chances of a smoker quitting increases if health professional advises it</i>	641	60.4	77	67.0	564	59.6	252	63.3	371	58.3	0.126	141	56.9	124	59.0	376	62.3	0.312
<i>Smoking health professionals tend to advise their patients less to quit smoking</i>	403	37.9	50	43.5	353	37.3	155	38.9	240	37.7	0.196	73	29.4	78	37.1	252	41.7	<0.05
<i>The Public Health System should fund effective smoking cessation treatments</i>	809	76.2	92	80.0	717	75.7	292	73.4	496	78.0	0.308	199	80.2	155	73.8	455	75.3	0.208

^a: Chi-square test (male vs female)

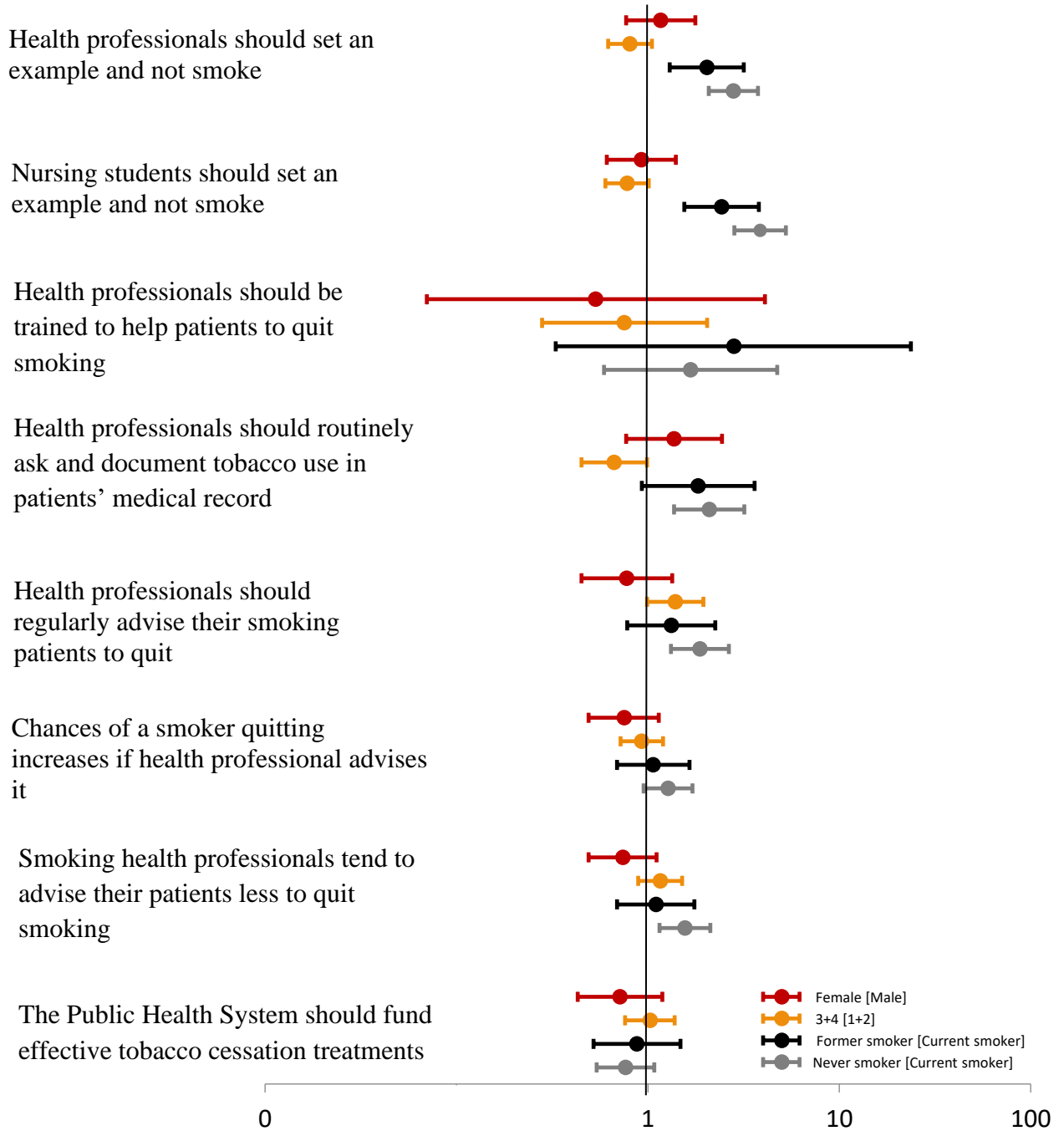
^b: Chi-square test (nursing student vs nurse)

^c: Chi-square test (current smoker vs former smoker vs never smoker)

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Figure 1: Predictors of having positive attitude towards health professionals' and health organizations' role in tobacco control at follow-up (2018–2019) within a cohort of nursing students according to their characteristics at baseline (2015–2016)



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Predictors of transitioning in attitudes between baseline and follow-up are illustrated in Table 2. Compared to participants who were current smokers, participants who were former smokers at baseline were twice as likely to transition to agreement at follow-up regarding the exemplary role of the health professionals (aOR = 2.12, 95% CI 1.06–4.21). Both participants who were former and never smokers were three times more likely to transition to agreement with the exemplary role of nursing students at follow-up (former smoker: aOR = 3.00, 95% CI 1.56–5.75 and never smoker: aOR = 3.19, 95% CI 2.03–5.02).

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Table 2: Probability of acquiring positive attitudes towards health professionals' and health organizations' role in tobacco control between the baseline (2015–2016) and the three-year follow-up (2018–2019) within a cohort of nursing students according to their characteristics at baseline

Attitudes	Overall		Sex		Year of school at baseline				Smoking status at baseline						
	Acquired positive attitudes n (%)	Not acquired positive attitudes n (%)	Male n (%)	Female n (%)	1+2 n (%)	3+4 n (%)	3+4 vs 1+2 OR _a	95% CI	Current smoker n (%)	Former smoker n (%)	Former vs Current smoker OR _a	95% CI	Never vs Current smoker OR _a	95% CI	
															OR _a
Health professionals should set an example and not smoke	151 (40.2)	225 (59.8)	14 (35.0)	137 (40.8)	98 (43.9)	51 (35.4)	0.67	0.43–1.04	51 (33.6)	23 (50.0)	2.12	1.06–4.21	75 (42.9)	1.57	0.99–2.47
Nursing students should set an example and not smoke	172 (31.2)	379 (68.8)	20 (34.5)	152 (30.8)	116 (34.0)	48 (24.7)	0.64	0.42–0.96	34 (17.4)	24 (37.5)	3.00	1.56–5.75	114 (39.4)	3.19	2.03–5.02
Health professionals should receive training to help patients to quit smoking	41 (97.6)	1 (2.4)	5 (100)	36 (97.3)	30 (100)	9 (90.0)	-	-	15 (93.8)	6 (100)	-	-	18 (100)	-	-
Health professionals should routinely ask and document tobacco use in patients' medical record	140 (84.3)	26 (15.7)	15 (83.3)	125 (84.5)	103 (86.6)	32 (78.0)	0.52	0.21–1.33	46 (79.3)	13 (92.9)	3.59	0.42–30.51	81 (86.2)	1.88	0.77–4.61
Health professionals should regularly advise their smoking patients to quit	129 (62.3)	78 (37.7)	12 (66.7)	117 (61.9)	81 (59.6)	44 (66.7)	1.30	0.70–2.42	43 (58.9)	14 (53.8)	0.75	0.30–1.88	72 (66.7)	1.29	0.69–2.43
Chances of a smoker quitting increase if health professional advises it	246 (50.6)	240 (49.4)	21 (56.8)	225 (50.1)	168 (51.7)	70 (47.0)	0.83	0.56–1.23	57 (44.2)	29 (54.7)	1.71	0.88–3.31	160 (53.0)	1.45	0.95–2.20
Smoking health professionals tend to advise their patients less to quit smoking	215 (28.5)	539 (71.5)	26 (34.7)	189 (27.8)	131 (27.8)	76 (28.3)	1.02	0.72–1.42	56 (26.4)	23 (25.6)	1.03	0.58–1.84	135 (30.2)	1.29	0.89–1.88
The Public Health System should fund effective tobacco cessation treatments	200 (59.9)	134 (40.1)	24 (68.6)	176 (58.9)	134 (62.9)	61 (55.0)	0.71	0.45–1.14	41 (59.4)	18 (54.5)	0.79	0.33–1.88	140 (60.9)	0.99	0.57–1.75

a. Adjusted OR for sex, year of school at baseline and smoking status at baseline

Changes in training for tobacco dependence and cessation treatment received during the Bachelor's Degree in Nursing and its predictors

The proportion of participants who reported receiving tobacco-related training during their nursing education increased for all explored items between baseline and follow-up (Table 3). Most participants (95.8%) reported receiving information about the difference between active and passive smoking, with current smokers more frequently reporting this training than former or never smokers ($p < 0.05$). Training on how to support people who smoke in quitting and feeling capable of helping them to quit continued to have the lowest percentages (57.0% and 40.0%, respectively). Both of these statements had higher agreement among participants who continued their studies compared to those who became registered nurses ($p < 0.001$), and among current smokers compared to former and never smokers ($p < 0.001$). In addition, participants who were in the last years of schooling at baseline were less likely to report receiving training on supporting smokers in quitting compared to first-year participants (aOR = 0.73, 95%CI 0.57–0.95). Never smokers at baseline had a lower probability of stating that had knowledge and enough skills to help a smoker to quit at follow-up compared to current smokers (aOR = 0.65, 95%CI 0.49–0.87) (Figure 1). Moreover, 76.1% of participants reported receiving training about the importance of providing educational material to individuals trying to quit, with a higher proportion of nursing students reporting this compared to nurses ($p < 0.001$). Participants who were in the last years of schooling at baseline were less likely to affirm this statement compared to first-year participants (aOR = 0.59, 95%CI 0.44–0.79). Regarding pharmacological treatments for quitting smoking, three in five participants had received training about other pharmacological treatments for quitting, while four in five respondents had been taught about nicotine replacement treatment at follow-up. Participants who were current smokers at follow-up reported receiving this training more frequently than former and never smokers ($p < 0.001$). Participants who were never smokers at baseline had a lower probability of affirming this training compared to current smokers (aOR = 0.53, 95%CI 0.39–0.72).

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Table 3. Participants' self-reported training related to tobacco dependence and cessation treatment received during the Bachelor's Degree in Nursing at follow-up (2018–2019) by independent variables

Training received	Overall			Sex			Occupation at follow-up			Smoking status at follow-up			p-value ^c	
	n	%	p-value ^a	Male n	Female n	%	Nursing student n	Nurse n	%	Current smoker n	Former smoker n	Never Smoker n		%
<i>Has somebody in class, seminar, or practice talked about risks of smoking?</i>	989	94.9	0.909	107	882	94.9	371	591	95.2	235	195	559	94.6	0.513
<i>Has someone in your class explained the difference between an active smoker and a passive smoker?</i>	998	95.8	0.270	106	892	96.0	373	597	96.1	239	192	567	95.9	<0.05
<i>Have you discussed in any class, seminar, or practice about the reasons why people smoke?</i>	736	70.6	0.116	87	649	69.9	290	428	68.9	180	142	414	70.1	0.434
<i>Have you been taught about the importance of recording the tobacco use in the patient's medical history?</i>	828	79.5	0.237	85	743	80.0	319	485	78.1	197	159	472	79.9	0.551
<i>Have you been trained to help patients quit smoking?</i>	594	57.0	0.750	66	528	56.8	248	333	53.6	156	120	318	53.8	<0.05
<i>Have you been instructed about the importance of providing educational material to support patients who want to quit smoking?</i>	793	76.1	0.999	86	707	76.1	323	450	72.5	187	161	445	75.3	0.752
<i>Are you familiar with nicotine substitute treatment to quit smoking?</i>	818	78.5	0.199	94	724	77.9	309	488	78.6	199	165	454	76.8	0.284
<i>Do you have knowledge of other pharmacological treatments to quit smoking?</i>	653	62.7	0.139	78	575	61.9	251	386	62.2	180	131	342	57.9	<0.001
<i>Currently, do you believe you possess the knowledge and skills to help a smoker to quit?</i>	417	40.0	0.074	54	363	39.1	186	224	36.1 %	122	86	209	35.4	<0.001

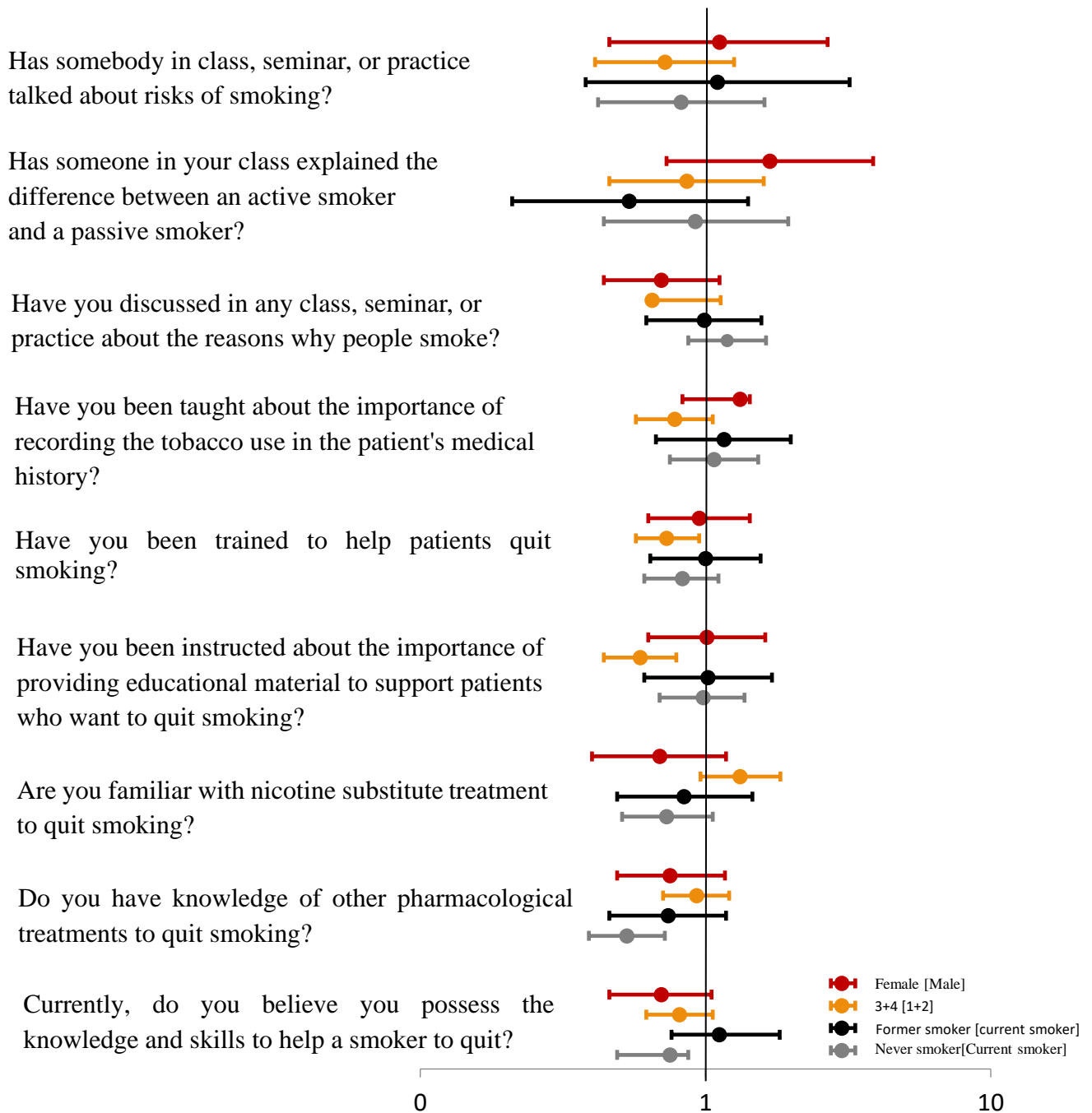
^a; Chi-square test (male vs female)

^b; Chi-square test (nursing student vs nurse)

^c; Chi-square test (current smoker vs former smoker vs never smoker)

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Figure 2: Predictors of having received training related to tobacco dependence and cessation treatment received during the Bachelor’s Degree in Nursing at follow-up (2018–2019) within a cohort of nursing students according to their characteristics at baseline (2015–2016)



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Predictors of transitioning in training between baseline and follow-up are illustrated in Table 4. In the majority of training items, the probability of transition to *yes* was lower among participants from the last years of schooling at baseline than among those from the first years. This included receiving training about the risks of smoking (aOR = 0.16, 95%CI 0.05–0.54), the difference between an active smoker and a passive smoker (aOR = 0.23, 95%CI 0.06–0.94), the reasons why people smoke (aOR = 0.45, 95%CI 0.29–0.69), the importance of documenting tobacco use in the patient's medical history (aOR = 0.32, 95%CI 0.17–0.59) and the importance of giving educational materials when helping quit smoking (aOR = 0.32, 95%CI 0.21–0.47). In addition, participants from the last years of schooling were less likely to transition to *yes* in the statement regarding considering themselves capable of helping smokers to quit compared to first year participants (aOR = 0.47, 95%CI 0.33–0.66). Never smokers were less likely to transition to *yes* in terms of having received training about other pharmacological treatments to quit smoking (aOR = 0.58, 95%CI 0.40–0.83) and considering themselves capable of helping smokers to quit (aOR = 0.66, 95%CI 0.47–0.92) compared with current smokers.

Table 4: Probability of acquiring more training related to tobacco dependence and cessation treatment received during the Bachelor's Degree in Nursing between the baseline (2015–2016) and the three-year follow-up (2018–2019) within a cohort of nursing students according to their characteristics at baseline

Training received	Overall				Sex				Year of school at baseline				Smoking status at baseline					
	Acquired more training		Not acquired more training		Male	Female	Female vs Male	95 CI %	1+2	3+4	3+4 vs 1+2	Current smoker	Former smoker	Former vs Current smoker	Never Smoker	Never vs Current smoker		
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	ORa ^a	95 CI %	n (%)	n (%)	ORa ^a	95 CI %	n (%)	n (%)	ORa ^a	95 CI %		
Has somebody in class, seminar, or practice talked about risks of smoking?	176 (88.4)	23 (11.6)	13 (81.3)	163 (89.1)	1.88	0.42–8.44		160 (90.9)	11 (64.7)	0.16	0.05–0.54	57 (91.9)	15 (83.3)	0.45	0.09–2.26	103 (87.3)	0.49	0.16–1.53
Has someone in your class explained the difference between an active smoker and a passive smoker?	149 (91.4)	14 (8.6)	15 (83.3)	134 (92.4)	2.24	0.53–9.42		136 (93.2)	11 (73.3)	0.23	0.06–0.94	37 (94.9)	12 (80.0)	0.36	0.05–2.64	100 (91.7)	0.58	0.12–2.85
Have you discussed in any class, seminar, or practice about the reasons why people smoke?	343 (63.5)	197 (36.5)	34 (64.2)	309 (63.4)	0.94	0.51–1.74		285 (67.7)	53 (48.6)	0.45	0.29–0.69	89 (61.4)	32 (59.3)	1.02	0.53–1.96	221 (65.4)	1.15	0.76–1.73
Have you been taught about the importance of recording the tobacco use in the patient's medical history?	280 (72.9)	104 (27.1)	31 (67.4)	249 (73.7)	1.47	0.72–2.30		244 (76.3)	26 (51.0)	0.32	0.17–0.59	72 (73.5)	23 (67.6)	0.74	0.30–1.82	182 (73.4)	1.07	0.62–1.84
Have you been trained to help patients quit smoking?	378 (53.2)	333 (46.8)	39 (51.3)	339 (53.4)	1.03	0.62–1.71		323 (58.5)	45 (31.5)	0.32	0.21–0.47	95 (54.6)	42 (51.2)	0.96	0.55–1.68	239 (52.9)	0.91	0.63–1.30
Have you been instructed about the importance of providing educational material to support patients who want to quit smoking?	308 (72.6)	116 (27.4)	36 (75.0)	272 (72.3)	0.88	0.43–1.82		269 (76.9)	31 (49.2)	0.29	0.17–0.51	75 (73.5)	33 (68.8)	0.93	0.42–2.05	199 (72.9)	0.99	0.58–1.69

<i>Are you familiar with nicotine substitute treatment to quit smoking?</i>	262 (69.9)	113 (30.1)	30 (73.2)	232 (69.5)	0.81	0.38– 1.74	202 (70.4)	53 (67.9)	0.88	0.51– 1.51	71 (75.5)	23 (62.2)	0.57	0.25– 1.31	167 (69.0)	0.74	0.43– 1.29
<i>Do you have knowledge of other pharmacological treatments to quit smoking?</i>	440 (59.6)	298 (40.4)	52 (65.0)	388 (59.0)	0.81	0.49– 1.34	293 (60.5)	137 (57.8)	0.86	0.63– 1.18	115 (68.5)	58 (65.2)	0.87	0.50– 1.52	264 (55.3)	0.58	0.40– 0.83
<i>Currently, do you believe you possess the knowledge and skills to help a smoker to quit?</i>	299 (36.3)	525 (63.7)	35 (41.2)	264 (35.7)	0.79	0.49– 1.27	235 (40.4)	58 (25.4)	0.47	0.33– 0.66	89 (41.0)	36 (42.4)	1.08	0.64– 1.82	172 (33.1)	0.66	0.47– 0.92

^a: Adjusted OR for sex, year of school at baseline and smoking status at baseline

DISCUSSION

To our knowledge, this is the first longitudinal study to identify predictors of acquiring positive attitudes and receiving more training in tobacco control among nursing students. Although the rates of nursing students with positive attitudes and with higher training received slightly increased between baseline and follow-up, they remained low for many of the explored items. Participants in their last years of schooling were less likely to acquire positive attitudes and more training at follow-up compared to first year ones. Otherwise, when compared to participants who were current smokers, those former and never smokers were more likely to acquire positive attitudes at follow-up, but had a lower probability of transitioning to receiving more training.

Despite the increase in positive attitudes and training from baseline to follow-up, most participants believed that they did not have sufficient skills to help patients quit smoking and reported a low perception of role modeling. Accordingly, a sequential cross-sectional study of Spanish nursing students not only found low levels of tobacco-related knowledge, but also a decline in knowledge rates over time (Ordás et al., 2015). These results could be explained by the limited training received in tobacco cessation interventions during their nursing education (Lepage et al., 2015; Ye et al., 2018). In fact, there is a clear consensus regarding the lack of tobacco-related education in nursing curricula, which generally cover only the risks of tobacco use, with the most important training deficiencies in the effective strategies to help patients quit smoking (Sreeramareddy et al., 2018; Martínez et al., 2023). These findings highlight the need to enhance nursing curricula to adequately prepare future nurses. In this sense, increasing practical training in smoking cessation interventions through either in-person or online resources, developed and tested before, could boost their confidence and training to implement these interventions (Pardavila-Belio et al., 2023; Peterson et al., 2017).

Regarding changes in attitudes, unlike our results, Ordás et al. reported no differences in the percentages of nursing students with positive attitudes towards tobacco control over time (Ordás et al., 2015). It is worth mentioning that their study was a sequential cross-sectional study that recruited students from a single university and compared different cohorts, making it challenging to assess changes over time. In contrast, our study was conducted as follow-up study over three years, involving students enrolled in 15 universities. Our findings indicate that no-smoking students were more inclined to believe

that nursing students should set an example by not smoking. However, despite this inclination, the agreement with this statement remained low, with only 52.4% of participants agreeing with. To effect a meaningful change in their perceptions, and consequently, a greater involvement in tobacco prevention and control, nursing schools should explore engaging activities to inspire the future generation of nurses (Macy et al., 2014).

Regarding the acquisition of additional training during nursing education, our study found that never smokers reported lower odds of transitioning to receiving education about other pharmacological treatments and considering themselves capable of helping patients to quit smoking at follow-up, compared to current smokers. This finding could be attributed to the relatively low level of training they receive. This finding aligns with a previous study in the UK, where smoking nursing nurses who had not received any training reported higher levels of tobacco control confidence compared to nonsmokers (Walsh et al., 2012). This phenomenon could be explained by the absence of a well-established tobacco cessation training, leading smokers to potentially overestimate their skills knowledge due to their personal experiences with tobacco addiction, in contrast to non-smokers. However, it is essential to note that the reported higher levels of confidence in tobacco cessation among smokers may constitute a temporary, unrealistic assumption. Research by Mujika et al. revealed that only nurses who had quit smoking were able to identify the negative effects of smoking in their past health promotion practices (Mujika et al., 2017). This suggests that smokers who report high level of tobacco control confidence may potentially change their opinion once they quit smoking. Nevertheless, further research is needed to assess the long-term influence of smoking status on nursing students' attitudes and training they receive.

In regard to the finding that participants in the first years of schooling were more likely to acquire positive attitudes compared to their counterparts in the later years, it suggests that nursing students tend to be more receptive to positive changes in attitudes towards tobacco control during their nursing degree compared to after graduation. This indicates that the college years present an ideal period to promote positive changes in tobacco-related attitudes among all nursing students, particularly those who smoke (NCCDPHP, 2012; CDC, 2014). Furthermore, the inverse relationship between tobacco use and the adoption of positive smoking attitudes has been previously reported in cross-sectional studies (Clark et al., 2004; Alves et al., 2022). Nevertheless, the discovery of a negative

association with the acquisition of positive attitudes is a novel, though expected, finding. One plausible explanation for the differing attitudes may be the influence of their smoking friends or relatives, prevailing social norms, and exposure to secondhand smoke, all of which could contribute to a decline in positive attitudes toward tobacco use among smokers (Clark et al., 2004; Alves et al., 2022). The limited likelihood of our smoker participants transitioning to positive attitudes is particularly concerning, especially among those who continue their education in the school of nursing. As future nurses, these students will play a critical role in tobacco prevention and control efforts, making their own smoking behaviors and attitudes toward tobacco use significant factors influencing their future professional practice (WHO Tobacco Free Initiative, 2005; Duaso et al., 2017). While an increase in tobacco-related knowledge levels during university education can have a significant impact on fostering positive attitudes toward smoking cessation among nursing students, it may be insufficient to induce changes in their tobacco use behaviors (Han et al., 2012). In this regard, current data indicates that more stringent and comprehensive policies, including the implementation of tobacco-free campus policies, tobacco prevention and cessation programs, and restrictions of tobacco sales, advertising, and promotion, yield more favorable results in terms of promoting positive attitudes and reducing smoking behavior (NCCDPHP, 2012; CDC, 2014). Such strategies contribute to the reduction of tobacco initiation rates, the encouragement of smoking cessation, the decrease in the exposure to exposure to environmental tobacco smoke, the alteration of social norms, and denormalization of smoking, which can positively impact on nursing students' attitudes toward tobacco control (Lechner et al., 2012; Fallin et al., 2015; Bardus et al., 2020).

Limitations and strengths

This longitudinal study exhibits both strengths and limitations worth noting. While the overall response rate at follow-up was relatively low, it is essential to recognize that the study encompasses a substantial cohort of nursing students representing all nursing schools in Catalonia (Spain). Although there is possibility of non-response bias, particularly among those who were current smokers at baseline, potentially leading to more positive attitudes and training in tobacco control among participants at follow-up; however, it is important to highlight that potential bias did not impact the reported

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predictors. This is because we thoroughly included baseline smoking status in the regression models to account for this (Laroussy et al., 2022). However, a notable limitation concerns the not assessed factors, such as the socioeconomic status and social environment, which could potentially serve as predictors; But we did collect information on these key variables like sex, year of school, and smoking status.

Concerning, the external validity of this longitudinal study is somewhat constrained, as it primarily pertains to nursing students from Catalonia (Spain). Nevertheless, it is reasonable to assume that the characteristics of these participants do not markedly differ from those of other nursing students in Spain or in Europe (Fernández-García et al., 2020).

Finally, it is important to mention that the data were collected through a self-report questionnaire, which can be susceptible to recall bias concerning smoking status. However, previous studies have observed a high reliability of self-reported smoking history (Volk et al., 2020).

CONCLUSIONS

After three years of follow-up, there was a moderate increase in the proportion of students displaying positive attitudes and improved training in various facets of tobacco cessation and control. Approximately 30% of students changed their opinion about their role as exemplary role models, while nearly all who initially disagreed with the idea of being trained to assist patients to quit had a change in their opinion. In terms of competence in providing smoking cessation support, around 36% of those who initially felt lacking in this skiset revised their stance.

Our findings underscore the substantial room for improvement in smoking cessation knowledge and skills among nursing students. Notably, the year of schooling and smoking status emerged as predictors for the acquisition of positive attitudes and enhanced training related to tobacco cessation in this cohort of nursing students. The results emphasize the importance of implementing strategies aimed at augmenting the training and attitudes of nursing students toward tobacco control, ensuring that they are well-equipped to manage tobacco dependence effectively in their future practice. Effective strategies for achieving this goal may involve increasing theoretical and practical training in smoking cessation interventions, possibly through a combination of in-person

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and online learning resources, and integrating measures such as tobacco-free campus policies, tobacco prevention and cessation programs within university campuses.

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1. Interpretación de los resultados

Los resultados obtenidos en esta tesis proporcionan una visión global del consumo de tabaco en una cohorte de estudiantes de Enfermería de Cataluña, siendo el primer estudio longitudinal con estas características en este colectivo en Europa, según nuestro conocimiento. Así mismo, se reportan los cambios producidos en el consumo de productos de tabaco, actitudes y formación recibida en tabaquismo entre el estudio basal y el seguimiento y sus predictores.

1.1. Seguimiento de la cohorte de estudiantes de Enfermería

El porcentaje de participación en el estudio (28,6%) fue bajo en comparación con otros estudios de cohorte entre estudiantes de Enfermería de Japón y Taiwán y entre estudiantes universitarios de Georgia y con estudios de cohorte que han empleado una encuesta en línea, ya que estos contaron con una participación que oscilaba entre el 53% y el 87% (Emani et al., 2017; Lai et al., 2008; Loxton et al., 2019; McDonald et al., 2017; Ohida et al., 2001). Sin embargo, la participación fue mayor en comparación con otros estudios de cohorte con cuestionarios en línea entre profesionales enfermeros/as de Nueva Zelanda y en la población general alemana, en el que solo pudieron seguir entre el 5% y el 9% de los/las encuestados/as (Rübsamen et al., 2017; Turner et al., 2009). Los resultados sobre predictores de seguimiento concuerdan totalmente con lo reportado en otros estudios de cohortes sobre tabaquismo entre estudiantes universitarios, encontrando también mayor probabilidad de participar entre mujeres y no fumadores/as (McDonald et al., 2017). Cabe destacar que la menor participación de los/las fumadores/as también ha ocurrido en estudios de seguimiento no relacionados con el tabaquismo entre otro tipo de población (Forcey et al., 2014). En relación con la edad, Fekete et al. y Zazpe et al. también la describieron como un factor asociado con la participación entre la población general, teniendo los/las jóvenes mayor probabilidad de realizar seguimiento online que los/las mayores (Fekete et al., 2015; Zazpe et al., 2019). Estos datos muestran la necesidad de incorporar estrategias efectivas en el diseño y método de recogida de datos de los estudios

de seguimiento para aumentar la participación de estas personas. Más adelante, se reportarán algunas de las estrategias que han demostrado mayor efectividad en la retención de las personas y el incremento de su participación, la mayoría de las cuales se han empleado en este estudio.

1.2. Transiciones en el consumo de productos de tabaco, e-cigarrillos y cannabis

Los/las estudiantes de Enfermería seguidos/as experimentaron diversas transiciones en el consumo de productos de tabaco, e-cigarrillos y cannabis, presentando las mismas tendencias que los/las jóvenes y resto de estudiantes universitarios (Clendennen et al., 2019; Gutiérrez-Bedmar et al., 2009; Pardavila-Belio et al., 2019). Sin embargo, las incidencias acumuladas de iniciar el consumo, recaer y dejar de fumar obtenidas en esta cohorte difieren de otros estudios de seguimiento en estudiantes de Enfermería de Japón y en estudiantes universitarios/as españoles/as (Ohida et al., 2001; Gutiérrez-Bedmar et al., 2009; Pardavila-Belio et al., 2019). En cambio, los predictores de dejar de fumar y reducir el consumo de cigarrillos concuerdan con lo reportado en estudiantes universitarios/as españoles/as y norteamericanos/as (Pardavila-Belio et al., 2019; Wetter et al., 2004). Estos resultados sugieren, que a pesar de su rol clave en tabaquismo como futuros profesionales enfermeros/as, los/las estudiantes de Enfermería muestran tendencias y predictores de cambio en el consumo de tabaco similares a los/las de estudiantes universitarios/as de otros ámbitos educativos. Además, la mayoría de los/las estudiantes de Enfermería son personas jóvenes y, por tanto, la etapa universitaria es un periodo clave en la consolidación de su consumo tabáquico. Estos hechos ponen de manifiesto la importante y urgente necesidad de una implementación de estrategias efectivas para reducir el consumo de tabaco entre los/las estudiantes de Enfermería.

En particular, los/las fumadores/as ocasionales tuvieron mayor probabilidad de experimentar transiciones tanto hacia un mayor consumo como a su erradicación, mostrando así, una mayor inestabilidad en su estado y patrón de consumo de tabaco a lo largo del seguimiento. Por tanto, los/las estudiantes de Enfermería que fuman ocasionalmente podrían ser un grupo diana relevante en la implementación de estrategias para incentivar la cesación tabáquica. De forma similar, los/las fumadores/as que hacían un consumo combinado en el basal experimentaron diversos cambios en el estado y tipo de

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consumo en el seguimiento. Aunque no se pudo aplicar el modelo de regresión logística, el análisis bivariado reveló algunos factores asociados a estos cambios, entre los que se destaca el tipo de producto consumido, tener entre 20–24 años y cursar segundo y tercer curso de Enfermería. Además, aunque la proporción de fumadores/as que hacían un consumo combinado en el basal y dejaron de fumar en el seguimiento fue importante (23,4%), la prevalencia global de consumo combinado incrementó. Estos datos apuntan a que una implementación temprana de las estrategias de prevención y control del tabaquismo y la inclusión del uso de todos los productos de tabaco y nicotina e intervenciones de cesación tabáquica en ellas podrían incrementar su efectividad entre estudiantes de Enfermería. Sumado a ello, el hecho de que los predictores de cambio en el consumo de tabaco hayan sido los mismos que los encontrados entre otros/as estudiantes universitarios/as sugiere que todos/as podrían beneficiarse de la implementación de las mismas estrategias de prevención y control del tabaquismo, incrementando así su coste-efectividad.

1.3. Transiciones en las actitudes y formación en tabaquismo

El consumo de tabaco de los/las estudiantes de Enfermería de la cohorte ECTEC-S no solo ha sido un factor determinante en la participación en el estudio, sino que también lo ha sido en los cambios en sus actitudes y formación recibida en tabaquismo. De este modo, los/las estudiantes de Enfermería fumadores/as tuvieron menor probabilidad de adquirir actitudes positivas hacia el rol de los/las profesionales en el control del tabaquismo, pero presentaron mayor probabilidad de adquirir formación sobre tabaquismo. La asociación negativa entre el consumo de tabaco y la adopción de actitudes positivas en tabaquismo ya había sido reportada en estudiantes de Enfermería y estudiantes universitarios con anterioridad en estudios transversales (Alves et al., 2022; Clark et al., 2004). No obstante, la asociación negativa con la adquisición de actitudes positivas es un hallazgo novedoso, aunque esperado. Esta asociación podría explicarse por la mayor probabilidad entre los/las fumadores/as de estar rodeados de amigos/as o parientes fumadores/as, más expuestos al HAT y tener unas normas sociales pro-tabáquicas, lo que podría influir en sus actitudes hacia el consumo, prevención y control del tabaquismo (Alves et al., 2022; Clark et al., 2004). Este hecho tan preocupante, pone de manifiesto la interferencia del consumo de tabaco en diversas dimensiones del ser humano, incluyendo, además de la fisiológica, psicológica y social, la académica y profesional, lo que supone una gran problemática entre los/las

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estudiantes de Enfermería dado su futuro rol como educadores. De hecho, como ya se ha mencionado anteriormente, son varios los estudios que apuntan a una menor implementación de intervenciones de cesación tabáquica por parte de los/las enfermeros/as fumadores/as pese a que son más propensos a considerar que tienen los conocimientos y habilidades para ayudar a los/las pacientes a dejar de fumar (Chandrakumar y Adams, 2015; Duaso et al., 2017; Walsh et al., 2012). Este último dato va en consonancia con la mayor probabilidad de adquirir formación sobre tabaquismo durante el seguimiento reportada por los/las fumadores/as de esta cohorte de estudiantes de Enfermería. Esto podría explicarse por una sobreestimación de su nivel de confianza y conocimientos para desarrollar intervenciones de cesación tabáquica (Mujika et al., 2017).

Aunque la proporción de estudiantes de Enfermería con actitudes positivas y que hayan recibido formación en tabaquismo ha incrementado entre el estudio basal y el seguimiento, la mayoría de los/las participantes reportan una baja percepción de rol modélico y consideran que no tienen las habilidades suficientes para ayudar a los/las pacientes a dejar de fumar. Además, en un estudio comparativo entre estudiantes de Medicina y estudiantes de otras disciplinas en China, vieron que, a pesar de tener un mayor nivel de conocimientos y mejores actitudes hacia el tabaquismo, la prevalencia de consumo era similar entre ambos grupos (Han et al., 2012). Lo que sugiere que un aumento en el nivel de conocimientos sobre tabaquismo no es suficiente para provocar cambios en sus conductas hacia el consumo, prevención y control de tabaco (Chandrakumar et al., 2015).

2. Limitaciones y fortalezas del estudio

Las limitaciones más importantes de los estudios de cohortes prospectivos son consecuencia de la pérdida de sujetos que ocurre entre el estudio basal y el/los seguimiento/os. La pérdida de determinados sujetos, además de reducir el tamaño de la muestra, ha variado las características de la cohorte del estudio. De este modo, los hombres, los/las fumadores/as y los/las >24 años tenían menor probabilidad de hacer seguimiento que las mujeres, los/las nunca fumadores/as y los/las ≤ 19 años. Este hecho podría haber sesgado los resultados obtenidos. Además, la acentuada reducción del número de fumadores/as en el seguimiento ha imposibilitado analizar los predictores de ciertas transiciones como son iniciar el consumo de tabaco o recaer, entre otras. Una limitación añadida, relacionada con la voluntariedad de la participación, es la posibilidad de mayor

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seguimiento de personas con mayor concienciación sobre la salud y, por tanto, con mayor probabilidad de ser no fumador/a. Esto podría haber sesgado la prevalencia y perfil de los/las nuevos fumadores/as y los porcentajes de actitudes positivas hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo y la formación recibida durante el grado de Enfermería en el seguimiento. Siguiendo las consideraciones del CDC, la definición de fumador/a establecida para este estudio solo incluye a los/las usuarios/as de cigarrillo manufacturado y tabaco de liar, entre todos los productos explorados. Aunque los cigarrillos manufacturados y tabaco de liar son los más consumidos en España, esta definición podría haber contribuido en la reducción del número de fumadores/as del estudio. Otra limitación concierne a los predictores descritos en la evidencia científica que no se han incluido en el estudio, como son las normas sociales, el consumo de tabaco del entorno familiar y social, la percepción del nivel de adicción y la confianza para dejar de fumar entre los/las fumadores/as. Por último, tanto en el estudio basal como en el seguimiento, los datos se han recogido mediante cuestionarios autoadministrados, lo que podría producir sesgos con relación a la prevalencia, estado y patrón de consumo de tabaco.

Según nuestros conocimientos, este es el primer estudio de cohortes que describe los cambios en el consumo de productos de tabaco, actitudes y formación sobre tabaquismo entre estudiantes de Enfermería en Europa. Proporcionando así un abordaje integral de los cambios producidos en las diferentes dimensiones del tabaquismo. A pesar de la importante pérdida de sujetos en el seguimiento, la cohorte se compone de un total de 1.252 participantes de todas las universidades de Cataluña. Además, en el consumo de productos de tabaco, se ha explorado el uso de la mayoría de los productos existentes en la actualidad, desde los más tradicionales (cigarrillos manufacturados, puro, pipa o purito y tabaco de liar) hasta los más nuevos (e-cigarrillos, pipa de agua y dispositivos de tabaco sin combustión). También se ha estudiado el consumo de cannabis. Además, el tiempo de seguimiento ha permitido englobar la transición de más de la mitad de los/las participantes de estudiantes de Enfermería a enfermeros/as. Gracias a ello, hemos podido analizar las posibles diferencias entre las características de los/las participantes que han dejado de fumar, han iniciado el consumo o han recaído entre el estudio basal y el seguimiento entre un grupo y otro. Finalmente, como potenciales predictores de transición en el estado y patrón de consumo de tabaco se han incluido tanto las variables sociodemográficas y de la universidad donde se realiza el grado de Enfermería como las características de consumo de tabaco basales.

Este estudio es una de las pocas investigaciones sobre predictores de cambio en el consumo de tabaco que incluye las variables de la universidad y que amplía significativamente la lista de variables de consumo de tabaco exploradas.

3. Implicaciones para la Enfermería, la salud pública y la investigación

Dada la importancia de la etapa universitaria en la consolidación del consumo de tabaco, los conocimientos y las actitudes en tabaquismo entre los futuros profesionales de Enfermería, consideramos que las universidades representan un lugar importante para fomentar los hábitos de vida saludables e incentivar el abandono del consumo de tabaco entre estudiantes de Enfermería, además de protegerles del HAT y de la promoción y publicidad del tabaco.

3.1. Implicaciones para la Enfermería y la salud pública

Los resultados de estas tesis muestran la necesidad urgente de implementar estrategias eficaces para prevenir el consumo de tabaco, incentivar la cesación tabáquica y mejorar las actitudes y formación en tabaquismo entre los/las estudiantes de Enfermería. Por un lado, la implementación de políticas de control de tabaco más estrictas e integrales, y en las que se incorporan programas de prevención y cesación tabáquica, ha demostrado eficacia en la reducción del consumo de tabaco y de la exposición al HAT entre los/las jóvenes en general, y especialmente, entre los/las estudiantes universitarios (ACHA, 2012; CDC, 2014; National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, 2014; U.S. Department of Health and Human Services, 2012).

Estas estrategias incluyen políticas de espacios sin humo aplicados a los campus – los llamados “Campus libres de humo” —, programas de prevención y cesación tabáquica y control de los puntos de venta, publicidad y promoción de productos de tabaco. La evidencia científica ha demostrado que la implementación conjunta y simultánea de estas estrategias incrementa su efectividad en el control del tabaquismo, e incluso impacta positivamente en las actitudes hacia el tabaquismo adoptadas por los/las estudiantes universitarios, ya que reduce la aceptación social del consumo de tabaco (Bardus et al., 2020; Bich et al., 2016; Braverman et al., 2021; Duaso y Duncan, 2012; Fallin et al., 2015; Macy et al., 2014; Meijer et al., 2017; Lechner et al., 2012).

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De este modo, creemos que la implementación de estas estrategias entre los/las estudiantes de Enfermería podría reducir su consumo de tabaco y mejorar sus actitudes hacia el tabaquismo, lo que podría incrementar su grado de implementación de las intervenciones de cesación tabáquica una vez sean enfermeros/as. También, recomendamos utilizar la guía para el control del tabaquismo que ha elaborado la ACHA, titulada "*Position Statement on Tobacco on College and University Campuses*", en la que se detallan las acciones que implican cada una de las estrategias antes mencionadas.

Por otro lado, los resultados sobre actitudes y formación en tabaquismo de este estudio reflejan la baja percepción de su rol ejemplar como estudiantes de Enfermería y el déficit de preparación para implementar intervenciones de cesación tabáquica. Estos datos enfatizan la necesidad de mejorar el currículum enfermero con el objetivo de preparar correctamente a los/las futuros/as enfermeros/as. En este sentido, el incremento de la formación práctica en intervenciones de cesación tabáquica mediante recursos a distancia, como el creado en el proyecto INSTRUCT (Pardavila-Belio et al., 2023), podría aumentar su nivel de confianza y entrenamiento para implementar estas intervenciones (Petersen et al., 2017; Vides-Porras et al., 2021). Paralelamente, recomendamos implementar programas de educación y sensibilización entre los/las estudiantes de Enfermería para incrementar su percepción de rol modélico.

3.2. Implicaciones para la investigación

Los resultados sobre la participación en el estudio aportan información sobre diversos determinantes de seguimiento y estrategias efectivas que los/las investigadores/as pueden utilizar para incrementar la retención y la participación de las personas en los estudios longitudinales prospectivos. Algunas de ellas son (i) la notificación previa del estudio, (ii) el patrocinio del estudio por parte de la universidad, (iii) el uso de diversos métodos de recogida de datos (cuestionario en papel, en línea, etc.) en un mismo estudio, (iv) el uso de recordatorios e incentivos y, por último, (v) la monitorización minuciosa de la participación, bien mediante aplicativos que permitan conocer si las personas contactadas han recibido y abierto los correos electrónicos de invitación y/o recordatorios, o bien mediante un breve cuestionario sobre los motivos por los que rechazan participar (Clendennen et al., 2019; Edwards et al., 2009; Forcey et al., 2014; García et al., 2003; Udtha et al., 2015). Además, en el caso de estudiantes de ciencias de la salud, creemos que la implementación de programas

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educativos sobre la importancia de las investigaciones científicas y la creación de recursos universitarios para los *alumni* podría incentivar su participación, tanto activa como pasiva, en los estudios de cohortes.

Los resultados sobre los cambios en el consumo de tabaco revelan algunos factores asociados a diversas transiciones en el consumo de productos de tabaco entre la cohorte de estudiantes de Enfermería que pueden ser usados para crear estrategias de prevención y abandono del consumo de tabaco entre este colectivo. Este hecho deja cabida a que futuras investigaciones diseñen estas estrategias y evalúen su nivel de coste-efectividad. También, debido al reducido número de casos en este estudio, no se han llegado a analizar los predictores de iniciar el consumo de tabaco, recaer, pasar de fumador/a diario/a a ocasional y viceversa, pasar de consumo de cigarrillos a consumo combinado y viceversa y cambiar de un producto a otro. Animamos a la realización de futuras investigaciones para indagar sobre los factores relacionados con estas transiciones. Además de aumentar el tamaño de la muestra, recomendamos a los/las investigadores/as recoger la información sobre (i) la presencia de fumadores/as en el entorno familiar y social entre todos/as los/las participantes (tanto si son fumadores/as, exfumadores/as como nunca fumadores/as), (ii) el pasado patrón de consumo de tabaco de los/las exfumadores/as y (iii) la percepción de adicción y nivel de confianza para dejar de fumar, ya que podrían tener relevancia en su futuro comportamiento en relación con el consumo de tabaco. Además del uso regular, la experimentación con productos de tabaco y nicotina, y especialmente los productos más novedosos, es un fenómeno frecuente entre estudiantes universitarios. Aunque la experimentación con estos productos puede llevar a un consumo regular de cigarrillos, es un aspecto poco explorado entre estudiantes de Enfermería. Por este motivo, consideramos que es una futura línea de investigación de interés para la salud pública y el colectivo de Enfermería.

Finalmente, con relación a los cambios en las actitudes hacia el rol de los/las profesionales y entidades sanitarias en el control del tabaquismo, creemos que la creación y el diseño de herramientas universales y estandarizadas para la evaluación de las creencias y actitudes entre el colectivo enfermero podría facilitar su monitorización y extender su contraste.

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A continuación, se presentan las principales conclusiones de la tesis doctoral que responden a cada una de las hipótesis planteadas inicialmente.

H1: Al menos, la mitad de los/las estudiantes de Enfermería del estudio basal participará en el seguimiento (2018–2019); los/las jóvenes (≤ 24 años) y no fumadores/as en el basal tendrán mayor probabilidad de hacerlo, en comparación con los/las ≥ 25 años y fumadores/as.

- De los/las 4.381 estudiantes de Enfermería del estudio basal (2015–2016), 3.440 cumplieron con los criterios de inclusión para ser contactados en el seguimiento (2018–2019). De ellos/as, 1.252 (28,6%) cumplieron el cuestionario en línea de seguimiento.
- Las personas que eran mujeres, tenían ≤ 19 años y eran nunca fumadores/as participaron en una mayor probabilidad en el seguimiento, en comparación con los hombres, los/las que tenían ≥ 25 años y los/las fumadores/as.

H2: Los/las estudiantes de Enfermería seguidos/as experimentarán diversos cambios en relación con su consumo de tabaco entre el estudio basal y el seguimiento, especialmente, los/las jóvenes (≤ 24 años) y los/las fumadores/as que estén en los últimos cursos del Grado de Enfermería (3º y 4º) y que tengan una baja dependencia a la nicotina en el basal, comparado con los/las ≥ 25 años y los/las fumadores/as que estén en los primeros cursos (1º y 2º) y que tengan una alta dependencia.

- Entre el estudio basal y el seguimiento, hubo diversos cambios en el consumo global de productos de tabaco, e-cigarrillos y cannabis. La prevalencia de fumadores/as disminuyó, sin haber importantes cambios en la proporción de consumo diario y ocasional, la prevalencia de exfumadores/as aumentó y la prevalencia de nunca fumadores/as se mantuvo estable. Por último, entre los/las fumadores/as, los productos más consumidos fueron los cigarrillos manufacturados y los hechos con tabaco de liar, aunque la prevalencia de uso de otros productos (especialmente la

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pipa de agua y el cannabis) era notable tanto en el estudio basal como en el seguimiento.

- Los/las estudiantes de Enfermería seguidos/as experimentaron diversas transiciones en el estado de consumo de tabaco entre el estudio basal y el seguimiento. De los/las fumadores/as en el basal, casi una tercera parte han dejado de fumar en el seguimiento, siendo los/las consumidores/as ocasionales y con baja dependencia a la nicotina los/las que tenían mayor probabilidad de hacer esta transición, en comparación con los/las consumidores/as diarios/as y con media-alta dependencia. De los/las nunca fumadores/as, solo el 4,6% iniciaron el consumo de tabaco en el seguimiento. Finalmente, de los/las exfumadores/as, casi una cuarta parte recayeron.
- Los/las estudiantes de Enfermería que eran fumadores/as en el basal experimentaron diversas transiciones en el patrón de consumo de tabaco entre el estudio basal y el seguimiento. De los/las fumadores/as diarios/as en el basal, más de uno/a de cada diez participantes cambiaron a consumo ocasional en el seguimiento y de los/las fumadores/as ocasionales, más de una tercera parte pasaron a consumo diario. De los/las fumadores/as de cigarrillos exclusivamente, 14,2% cambiaron a consumo combinado y de los/las que hacían un consumo combinado, casi la mitad pasaron a cigarrillos exclusivamente. Finalmente, entre todos/as los/las fumadores/as (diarios/as y ocasionales), dos terceras partes redujeron el consumo de tabaco ≥ 5 CPD; los/las fumadores/as ocasionales y con baja dependencia a la nicotina tuvieron menor probabilidad de hacer esta transición.

H3: Los/las estudiantes de Enfermería seguidos/as mejorarán sus actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en el seguimiento respecto al estudio basal, especialmente aquellos/as participantes que no sean fumadores/as, en comparación con los/las fumadores/as.

- Los/las estudiantes de Enfermería seguidos/as mejoraron sus actitudes hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en el seguimiento respecto al estudio basal. No obstante, el porcentaje de actitudes positivas permaneció bajo en el rol ejemplar de los/las estudiantes de Enfermería en relación con el tabaquismo y a la menor implementación de consejo anti-tabáquico por parte de los/las profesionales sanitarios fumadores/as.
- Por una parte, los/las estudiantes de Enfermería que en el estudio basal eran nunca fumadores/as y exfumadores/as tuvieron mayor probabilidad de mostrar actitudes

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positivas hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo en el seguimiento, en comparación con los/las fumadores/as. Por otra parte, los/las estudiantes de Enfermería que cursaban 3º y 4º del Grado de Enfermería tuvieron menor probabilidad de considerar que los/las profesionales sanitarios/as deben preguntar y registrar rutinariamente en la historia clínica el consumo de tabaco de sus pacientes en el seguimiento, en comparación con los/las que cursaban 1º y 2º.

- La mayoría de los/las estudiantes de Enfermería seguidos/as adquirieron actitudes positivas hacia el rol de los/las profesionales y organizaciones sanitarias en el control del tabaquismo entre el estudio basal y el seguimiento: los/las nunca fumadores/as y exfumadores/as tuvieron mayor probabilidad de experimentar esta transición, en comparación con los/las fumadores/as, pero los/las participantes de los últimos cursos del Grado de Enfermería (3º y 4º) tuvieron menor probabilidad de hacerlo, en comparación con los/las estudiantes de los primeros cursos (1º y 2º).

H4: Los/las estudiantes de Enfermería seguidos/as incrementarán su formación recibida durante el grado de Enfermería sobre tabaquismo en el seguimiento respecto al estudio basal, especialmente aquellos/as participantes que estén en los primeros cursos de Grado de Enfermería (1º y 2º), comparado con los/las que estén en los últimos cursos (3º y 4º).

- Los/las estudiantes de Enfermería seguidos/as incrementaron su formación recibida sobre tabaquismo durante el grado de Enfermería en el seguimiento respecto al estudio basal. No obstante, el porcentaje de formación recibida permaneció bajo en el grado de confianza que tenían para ayudar a un/a fumador/a a dejar de fumar.
- Por una banda, los/las estudiantes de Enfermería que en el estudio basal eran nunca fumadores/as tuvieron menor probabilidad de haber recibido formación sobre tabaquismo durante el grado de Enfermería en el seguimiento, en comparación con los/las fumadores/as. Por otra parte, los/las estudiantes de Enfermería que cursaban 3º y 4º del Grado de Enfermería tuvieron menor probabilidad de haber recibido formación sobre tabaquismo durante el grado de Enfermería en el seguimiento, en comparación con los/las de 1º y 2º.
- Gran parte de los/las estudiantes de Enfermería seguidos/as adquirieron formación sobre tabaquismo durante el grado de Enfermería entre el estudio basal y el seguimiento: los/las participantes de los últimos cursos del Grado de Enfermería (3º y 4º) y los/las nunca fumadores/as tuvieron menor probabilidad de experimentar esta

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transición, en comparación con los/las estudiantes de los primeros cursos (1º y 2º) y los/las fumadores/as.

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ANEXOS

ANEXOS

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ANEXO 1

Hoja informativa y cuestionario del estudio basal (ECTEC)

HOJA DE INFORMACIÓN

Estudio de Consumo de Tabaco en Estudiantes del Grado de Enfermería en Cataluña (ECTEC)

Investigadora principal: Dra. Cristina Martínez

Esta hoja informativa contiene información sobre el estudio ECTEC, dirigido a estudiantes del Grado de Enfermería en Cataluña, al que te invitamos a participar. El estudio ECTEC ha sido aprobado por el Comité Ético de Investigación Clínica del Instituto Hospital Universitario de Bellvitge, de acuerdo con lo dispuesto en la legislación vigente (Real Decreto 223/2004).

Queremos darte toda la información necesaria para que puedas decidir si quieres o no participar. Por ello, te recomendamos que leas atentamente esta hoja informativa que resume los principales aspectos de este estudio.

PARTICIPACIÓN VOLUNTARIA: Tu participación en este estudio es voluntaria. Puedes decidir no participar o cambiar de opinión y retirar el consentimiento en cualquier momento, sin que por ello tengas consecuencia alguna en tu formación como estudiante.

DESCRIPCIÓN GENERAL DEL ESTUDIO: El objetivo de este estudio es analizar la prevalencia de consumo de tabaco de los/las estudiantes del grado de enfermería y describir los determinantes, patrón de consumo e intención de dejar de fumar entre los/las fumadores/as. Identificar los motivos de inicio del consumo de tabaco, así como las barreras que dificultan dejar de fumar en esta población. También se pretende averiguar el nivel de formación y los conocimientos adquiridos en tabaquismo e intervenciones para dejar de fumar de los/las estudiantes, en cada una de las universidades catalanas participantes.

Por tanto, se trata de un estudio que describe el consumo de tabaco y las intervenciones para dejar de fumar. Únicamente se necesitará que respondas a las preguntas formuladas en un cuestionario diseñado para este estudio. Se estima que participarán un total de 8.000 personas de las 18 Escuelas Universitarias de Enfermería en Cataluña.

Mediante este estudio, el profesorado y responsables de la gestión académica universitaria conocerán las necesidades de formación en tabaquismo susceptibles a mejorar. Además, luego de identificar la situación actual, se podrán desarrollar programas para dejar de fumar en el ámbito universitario.

TRATAMIENTO DE LOS DATOS DEL ESTUDIO: El tratamiento, la comunicación y la cesión de los datos de carácter personal de todos los participantes se ajustará a lo dispuesto en la Ley orgánica 15/1999, de 13 de diciembre de protección de datos de carácter personal. De acuerdo a lo que establece la legislación mencionada, podrás ejercer los derechos de acceso, modificación, oposición y cancelación de los datos; para ello deberás dirigirte al investigador principal.

Los datos recogidos para el estudio estarán identificados mediante un código y solo los investigadores podrán relacionar estos datos con los participantes y las Escuelas Universitarias. Por tanto, tu identidad no será revelada a terceras personas o entidades.

Tienes a tu disposición los teléfonos de información sobre este estudio por si quieres contactar con nosotros.

DATOS DE CONTACTO DEL EQUIPO INVESTIGADOR

Instituto Catalán de Oncología
Programa de Prevención y Control del Cáncer
Investigador Principal: Cristina Martínez
Preguntar por: Mercè Margalef
Teléfono de contacto: 93 260 73 57
Horario: 9 a 15 de lunes a viernes (excepto festivos)

Muchas gracias por tu participación.

Muy atentamente,

Dra. Cristina Martínez

Fecha (dd/mm/aaaa): _____

Escuela Universitaria (códigos a pie de página): _____

Curso: 1º 2º 3º 4º

Código de encuesta:

Fecha de nacimiento (dd/mm/aaaa): _____

Sexo: Hombre MujerLugar de origen: Cataluña España Fuera de España

TODOS LOS PARTICIPANTES

1. ¿Alguna vez has fumado, aunque sea una o dos caladas?

<input type="checkbox"/>	Sí
<input type="checkbox"/>	No

→ ¿Qué edad tenías?: _____

2. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto al tabaco:
(Marca con una X)

<input type="checkbox"/>	Actualmente fumo cada día (al menos un cigarrillo al día)	▶ continúa en la preg.3
<input type="checkbox"/>	Actualmente fumo ocasionalmente (no todos los días)	▶ continúa en la preg.3
<input type="checkbox"/>	Ahora no fumo, pero antes fumaba cada día (al menos un cigarrillo al día)	▶ pasa a la preg.17
<input type="checkbox"/>	Ahora no fumo, pero antes fumaba ocasionalmente (no todos los días)	▶ pasa a la preg.17
<input type="checkbox"/>	No he fumado nunca (o he fumado <100 cigarrillos en mi vida)	▶ pasa a la preg.21

FUMADORES DIARIOS Y OCASIONALES

3. ¿Cuánto consideras que fumas?

<input type="checkbox"/>	Poco
<input type="checkbox"/>	Normal
<input type="checkbox"/>	Mucho

4. ¿Qué edad tenías cuando empezaste a fumar? _____

5. ¿Has comenzado a fumar durante tu formación en el grado de enfermería? Sí No

6. ¿Cuál(es) fueron los motivos por los que empezaste a fumar? (Admite respuesta múltiple)

<input type="checkbox"/>	Porque mis amigos o compañeros fumaban
<input type="checkbox"/>	Porque alguien de mi familia fumaba
<input type="checkbox"/>	Porque mis profesores fumaban
<input type="checkbox"/>	Por probar algo nuevo
<input type="checkbox"/>	Porque estaba de moda
<input type="checkbox"/>	Para sentirme mayor
<input type="checkbox"/>	Para conocer gente o para ligar
<input type="checkbox"/>	Otros: _____

CÓDIGOS DE UNIVERSIDAD: 1: U. Internacional de Catalunya; 2: U. Blanquerna; 3: U Vic; 4: EUI Creu Roja; 5: EUI Manresa; 6: EUI Sant Joan de Déu; 7: EUI Mar; 8: EUI Sant Pau; 9: EUI UB; 10: EUI Vall d'Hebron; 11: U. Rovira i Virgili (Catalunya); 12: U. Rovira i Virgili (Terres de l'Ebre); 13: U. Rovira i Virgili (Coma-ruga); 14: EUI Gimbernat; 15: U. Girona; 16: U. Maresme; 17: U. Lleida (Lleida); 18: U. Lleida (Igualeda).

7. ¿Por qué fumas en la actualidad? (Admite respuesta múltiple)

Para controlar el peso
Para controlar el estrés, para relajarme
Para conocer gente
Para ligar
Porque mi entorno fuma (familia, amigos)
Porque está de moda
Por placer
Porque no puedo dejarlo
Otros: _____

8. ¿Qué tipo de tabaco fumas y cuánto fumas? Indica el número de unidades que fumas de cada tipo de tabaco en un día normal entre semana y en fin de semana (pon un cero si no fumas de un tipo particular)

	Unidades en un día entre semana	Unidades en un día de fin de semana
Cigarrillos convencionales		
Cigarrillos con tabaco de liar (picadura)		
Puros, puritos, pipa (especificar) _____		
<i>Shisha</i> , cachimba, pipa turca,...		
Otros (porros, canutos,...) (especifica) _____		

9. El día que fumas, ¿cuánto tardas en fumar el primer cigarrillo desde que te levantas?

5 minutos o menos
Entre 6 y 30 minutos
Entre 31 y 60 minutos
Más de 60 minutos

10. En el último mes, ¿has fumado alguna vez en los espacios cerrados de tu campus universitario?
 Sí No

11. En el último mes, ¿has fumado alguna vez en los espacios abiertos de tu campus universitario?
 Sí No

12. En el último año ¿has intentado seriamente dejar de fumar?

Sí	→ N° de veces (intentos de al menos 24 horas): _____
No	▶ <i>pasa a la preg. 15</i>

13. En el último intento, ¿cuánto tiempo estuviste sin fumar? _____ años _____ meses _____ días
14. ¿Cuáles son los motivos por los cuales no has conseguido dejar de fumar? (Admite respuesta múltiple)

Por el síndrome de abstinencia (irritabilidad, deseo de fumar, "tener mono",...)
Porque subo de peso
Creía que lo podía controlar, porque fumaba poco
Porque mi entorno no me ayudó (presión a fumar, mi entorno fuma,...)
Otros: _____

15. ¿Estás pensando seriamente en dejar de fumar?

<input type="checkbox"/>	Sí, ahora
<input type="checkbox"/>	Sí, de aquí a un mes
<input type="checkbox"/>	Sí, de aquí a unos 3-6 meses
<input type="checkbox"/>	Sí, de aquí a unos 7-12 meses
<input type="checkbox"/>	Algún día
<input type="checkbox"/>	No, no estoy pensando en dejar de fumar

16. ¿Estás pensando seriamente en reducir tu consumo?

<input type="checkbox"/>	Sí
<input type="checkbox"/>	No

► Si fumas pasa a la preg.21

EXFUMADORES DIARIOS Y OCASIONALES
17. ¿Qué edad tenías cuando empezaste a fumar? _____
18. ¿Cuáles fueron los motivos por los cuales dejaste de fumar? (Admite respuesta múltiple)

<input type="checkbox"/>	Para proteger mi salud
<input type="checkbox"/>	Por indicación de un profesional sanitario
<input type="checkbox"/>	Para dar ejemplo
<input type="checkbox"/>	Por presión de familiares o amigos
<input type="checkbox"/>	Para ahorrar
<input type="checkbox"/>	Otros motivos: _____

19. ¿Qué edad tenías cuando dejaste de fumar? _____
20. ¿Utilizaste algún tratamiento para dejar de fumar? (Admite respuesta múltiple)

<input type="checkbox"/>	Chicles, comprimidos, spray bucal o parches de nicotina
<input type="checkbox"/>	Medicamentos recetados (bupropion, vareniclina,...)
<input type="checkbox"/>	Apoyo profesional (médico, enfermera, psicólogo...)
<input type="checkbox"/>	Acupuntura, homeopatía, hipnosis
<input type="checkbox"/>	Otro: _____
<input type="checkbox"/>	No he utilizado ningún tratamiento

TODOS LOS PARTICIPANTES
21. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto al cannabis (marihuana, maría, hachís, porro...): (Marca con una X)

<input type="checkbox"/>	Actualmente fumo cada día (al menos un porro al día)
<input type="checkbox"/>	Actualmente fumo ocasionalmente (no todos los días)
<input type="checkbox"/>	Ahora no fumo, pero antes fumaba cada día (al menos un porro al día)
<input type="checkbox"/>	Ahora no fumo, pero antes fumaba ocasionalmente (no todos los días)
<input type="checkbox"/>	No he fumado nunca cannabis

22. ¿Sabes qué es el cigarrillo electrónico?

Sí	▶ <i>continua en la preg.23</i>
No	▶ <i>pasa a la preg.27</i>

23. ¿Has utilizado el cigarrillo electrónico alguna vez?

Sí, actualmente, cada día	▶ <i>continua el cuestionario</i>
Sí, actualmente, ocasionalmente (no cada día)	▶ <i>continua el cuestionario</i>
Ahora no, pero antes cada día	▶ <i>continua el cuestionario</i>
Ahora no, pero antes ocasionalmente (no cada día)	▶ <i>continua el cuestionario</i>
Sólo lo he probado	▶ <i>continua el cuestionario</i>
Nunca lo he probado	▶ <i>pasa a la preg.27</i>

24. ¿Has utilizado el cigarrillo electrónico con nicotina? Sí No

25. ¿Cuál(es) fueron los motivos para utilizar el cigarrillo electrónico? (Admite respuesta múltiple)

Para dejar de fumar tabaco convencional
Para reducir el consumo de tabaco convencional
Para utilizarlo en lugares donde está prohibido fumar tabaco
Por curiosidad, porque está de moda
Otros: _____

26. ¿El cigarrillo electrónico ha cumplido tus expectativas? Sí No

27. En tu Universidad o Escuela, ¿existe algún programa de ayuda a los estudiantes para dejar de fumar?

Sí	→ ¿Lo has utilizado? <input type="checkbox"/> Sí <input type="checkbox"/> No
No	
No lo sé	

28. Indica la frecuencia con la que has visto fumar en este campus universitario (de nunca a muchas veces):

	Nunca	Rara vez	Alguna vez	Varias veces	Muchas veces	No lo sé / no lo recuerdo
En zonas <u>interiores</u> de este campus						
En zonas <u>exteriores</u> de este campus (incluyendo entrada, jardines, parking, etc.)						

29. Durante los últimos 7 días, ¿has estado expuesto/a alguna vez al humo del tabaco en este campus universitario?

No, no he estado expuesto/a
Sí, he estado expuesto/a sólo en el interior
Sí, he estado expuesto/a sólo en el exterior
Sí, he estado expuesto/a en el interior y el exterior

30. ¿Cuál es tu grado de acuerdo con las siguientes afirmaciones?

	Totalmente de acuerdo	De acuerdo	Ni de acuerdo ni en desacuerdo	En desacuerdo	Totalmente en desacuerdo
Los profesionales de la salud deberían dar ejemplo y no fumar					
Los estudiantes de enfermería no deberían fumar					
Los profesionales de la salud deberían recibir formación sobre cómo ayudar a los pacientes a dejar de fumar					
Los profesionales de la salud deberían preguntar y registrar rutinariamente en la historia clínica el consumo de tabaco de sus pacientes					
Los profesionales de la salud deberían aconsejar rutinariamente a sus pacientes fumadores que dejen de fumar					
Las posibilidades de que un fumador deje de fumar aumentan cuando un profesional de la salud se lo aconseja					
Los profesionales de la salud que fuman tienden a aconsejar menos a sus pacientes que dejen de fumar					
El sistema público de salud debería financiar tratamientos eficaces para dejar de fumar					

31. De acuerdo con lo que sabes, ¿cuál es la normativa actual sobre consumo de tabaco que tienen los hospitales de agudos?

<input type="checkbox"/>	Se puede fumar en cualquier lugar del hospital
<input type="checkbox"/>	Sólo se puede fumar en determinadas áreas interiores destinadas para fumar
<input type="checkbox"/>	Está prohibido fumar en todo el interior del edificio hospitalario
<input type="checkbox"/>	Está prohibido fumar en todo el interior y se puede fumar en algunas zonas del exterior del campus hospitalario
<input type="checkbox"/>	Está prohibido fumar en todo el área interior y exterior del centro hospitalario, incluidos jardines y zonas de paseo o tránsito, parking, etc.

32. ¿Cuál es tu grado de acuerdo con las siguientes afirmaciones?

	Totalmente de acuerdo	De acuerdo	Ni de acuerdo ni en desacuerdo	En desacuerdo	Totalmente en desacuerdo
El consumo de tabaco debe estar prohibido en el <u>interior</u> de los <u>recintos hospitalarios</u>					
El consumo de tabaco debe estar prohibido en el <u>exterior</u> de los <u>recintos hospitalarios</u>					
El consumo de tabaco debe estar prohibido en el <u>exterior</u> de los <u>campus universitarios</u> de ciencias de la salud					
El consumo de tabaco debe estar prohibido en el <u>exterior</u> de los <u>campus universitarios</u> de cualquier tipo					

33. En relación a los contenidos impartidos en tu formación profesional:

	Sí	No
¿Te han hablado en alguna de las clases, seminarios o prácticas sobre los <u>riesgos</u> de fumar?		
¿Te han explicado la diferencia entre un fumador activo y pasivo?		
¿Se ha discutido en alguna de las clases, seminarios o prácticas los <u>motivos</u> por los cuales la gente fuma?		
¿Te han enseñado que es importante registrar el <u>uso del tabaco</u> en la historia clínica del paciente?		
¿Has recibido formación en <u>técnicas para ayudar a los pacientes a dejar de fumar</u> ?		
¿Te enseñaron que es importante <u>entregar material educativo</u> para apoyar el proceso de cesación en pacientes que desean dejar de fumar?		
¿Conoces las <u>terapias sustitutivas de nicotina</u> para dejar de fumar?		
¿Conoces otros <u>tratamientos farmacológicos</u> para dejar de fumar? ¿Cuáles? Especifícalos: _____		
Actualmente tengo los conocimientos y habilidades suficientes para ayudar a un fumador a dejar de fumar		

34. Indica si las siguientes afirmaciones son verdaderas o falsas:

	Verdadero	Falso
El consumo de tabaco es una adicción		
La prevalencia de consumo de tabaco en España está aumentando en los últimos años		
La mortalidad asociada al tabaquismo en España está aumentando en los últimos años		
En España, las enfermedades cardiovasculares son la principal causa de enfermedad relacionada con el tabaquismo		
Respirar el humo del tabaco de los fumadores constituye un riesgo para la salud		
En el caso de las fumadoras embarazadas se recomienda consumir hasta un máximo de 5 cigarrillos diarios si sus niveles de ansiedad son altos		
El test de Fagerström sirve para evaluar la motivación para dejar de fumar		
La hipnosis es una terapia de eficacia probada para dejar de fumar		
El tabaquismo durante el embarazo incrementa el riesgo de muerte súbita del lactante		
El tabaquismo pasivo provoca cáncer de pulmón en los no fumadores		
Las guías basadas en la evidencia recomiendan el uso de tratamientos farmacológicos a fumadores de menos de 5 cigarrillos diarios		

¡Gracias por participar!

ANEXO 2

Consentimiento informado del estudio basal (ECTEC) y del
seguimiento (ECTEC-S)

CONSENTIMIENTO DE PARTICIPACIÓN EN EL ESTUDIO DE CONSUMO DE TABACO EN ESTUDIANTES DE ENFERMERÍA DE CATALUÑA (ECTEC)

Yo, _____, de _____ años de edad y con DNI _____

DECLARO

Que he sido informado/a que el Institut Català d'Oncologia y el Consell de Col·legis d'Infermeres i Infermers de Catalunya están llevando a cabo un estudio sobre el consumo de tabaco en la población de estudiantes de enfermería de las universidades catalanas.

Que se ha solicitado mi participación voluntaria en este estudio, lo que supone responder un cuestionario confidencial sobre consumo de tabaco.

Que he sido informado/a de forma clara y comprensible de la finalidad, limitaciones y beneficios de este estudio, y me han contestado a todas las preguntas que he hecho y dudas que he mostrado al respecto.

Que he sido informado/a que puedo volver a ser contactado en el futuro en relación a este estudio para responder un cuestionario similar.

Que he sido informado/a que en cualquier momento puedo retirarme del estudio y anular mi consentimiento.

Que una vez concluido el estudio recibiré los principales resultados por correo electrónico.

La información recogida en este estudio es confidencial. La publicación de los resultados no revelará en ningún caso la identidad de las personas participantes, tal como establecen la ley orgánica 15/1999 de protección de datos de carácter personal*.

Por estas razones, **ACCEDO** a contestar el cuestionario y doy mi **CONSENTIMIENTO INFORMADO** para que esta información sea utilizada por los investigadores con el objetivo de mejorar y ampliar los conocimientos sobre el tabaquismo.

Firma de la persona participante

Correo-e: _____

_____, _____ de _____ de _____.

Código de encuesta:

* Conforme a lo dispuesto en la Ley orgánica 15/1999 de 13 de diciembre, de protección de datos de carácter personal, los datos personales recopilados en ningún caso se destinarán a otros fines más que a la propia gestión de este estudio. Estos datos no serán entregados a terceras partes, y serán incorporados a un fichero automatizado de propiedad del Institut Català d'Oncologia. Tiene derecho a acceder, cancelar y rectificar sus datos y oponerse a su tratamiento, en las condiciones previstas en la legislación vigente.

ANEXO 3

Correo electrónico de difusión de la encuesta de
seguimiento (ECTEC-S)

Estudio sobre el Consumo de Tabaco en los Estudiantes de Enfermería de Cataluña (ECTEC)

Posiblemente durante el curso 2015–2016 participaste en el **Estudio sobre el Consumo de Tabaco en los Estudiantes de Enfermería de Cataluña (ECTEC)** organizado por el Instituto Catalán de Oncología (ICO) con el soporte del Consell de Col·legis d'Infermeres i Infermers de Catalunya (CCIIC). Tu participación, junto a la de otros estudiantes, permitió conocer la situación en las diferentes universidades que imparten el grado de Enfermería en relación con el consumo de tabaco y los conocimientos en la prevención y control del tabaquismo. Para más información sobre el estudio, puedes leer el [informe aquí](#).

Ahora el grupo de investigación del ICO está realizando la segunda fase de este estudio y posiblemente contacte contigo mediante el correo electrónico que proporcionaste. **Es por eso que si recibes la petición de participación te animamos a colaborar y rellenar el cuestionario online.**

Si tienes cualquier duda, puedes contactar con ellos en los siguientes teléfonos: 932 607 335 o 932 607 357 (de 9 h a 13 h), o bien escribir a: ectec@iconcologia.net.

¡Muchas gracias por tu colaboración!

ANEXO 4

Correo electrónico de invitación a la encuesta de
seguimiento (ECTEC-S)

ANEXOS

Hola [Nombre],

Durante el curso 2015-2016 solicitamos tu participación en el estudio ECTEC, en que te pedíamos responder una encuesta sobre consumo de tabaco y nivel de conocimientos en tabaquismo, organizado por el Instituto Catalán de Oncología (ICO). Tu participación, junto a la de otros estudiantes, nos permitió conocer la situación en las diferentes universidades que imparten el grado. Para más información sobre el estudio, puedes leer el informe aquí.

Nuevamente, nos ponemos en contacto contigo para pedirte que participes en el seguimiento de este estudio, ya que tus respuestas nos permitirán conocer los posibles cambios que se hayan producido durante este tiempo. Encontrarás más información sobre los objetivos de este estudio en [este enlace](#).

Se trataría de contestar una encuesta en línea muy similar a la primera, que se puede hacer en menos de 10 minutos. Todos los participantes entrarán en el sorteo de un vale regalo de 300 €.

Cómo documento adjunto, tienes a tu disposición **LA HOJA INFORMATIVA DEL ESTUDIO**, en la cual podrás acceder a la encuesta si aceptas participar.

Si tienes cualquier duda, puedes contactar con nosotros en los siguientes teléfonos: 932 607 335 o 932 607 357 (de 9 h a 13 h), o bien escribiéndonos un correo electrónico a ectec@iconcologia.net.

Gracias por tu colaboración,

Unidad de Control del Tabaco

ANEXO 5

Hoja informativa y cuestionario del seguimiento (ECTEC-S)

HOJA DE INFORMACIÓN

Estudio de Seguimiento del Consumo de Tabaco en Estudiantes del Grado de Enfermería en Cataluña (ECTEC-S)

Investigadora principal: Dra. Cristina Martínez

Nos complace informarte sobre este estudio de investigación, al que se te invita a participar, dirigido a estudiantes del Grado de Enfermería en Cataluña (ECTEC-S) y del que participaste hace dos años. El estudio ECTEC-S ha estado aprobado por el Comité Ético de Investigación Clínica del Instituto de Recerca Biomèdica de Bellvitge (IDIBELL), de acuerdo con lo que establece la legislación vigente (Real Decret 223/2004).

Nuestra intención es que, como potencial participante, recibas la información correcta y suficiente para que puedas decidir si quieres o no participar en este estudio. Por eso, te pedimos que leas esta hoja informativa que resume los principales aspectos de esta información.

PARTICIPACIÓN VOLUNTARIA: Tu participación en este estudio es voluntaria, y puedes decidir no participar o cambiar tu decisión y retirar tu consentimiento en cualquier momento, sin que esto tenga ninguna consecuencia en tu formación como estudiante.

DESCRIPCIÓN GENERAL DEL ESTUDIO: Se trata de responder una encuesta en línea que se puede hacer en menos de 10 minutos. Entre todos los participantes se sorteará un vale regalo de 300€.

TRATAMIENTO DE LOS DATOS DEL ESTUDIO: El tratamiento, la comunicación i la cesión de los datos de carácter personal de todos los sujetos participantes se ajustará a lo que establece la Ley Orgánica 15/1999, de 13 de diciembre de protección de datos de carácter personal. De acuerdo al que establece la legislación citada, puedes ejercer los derechos de acceso, modificación, oposición y cancelación de datos. Para eso tendrás que dirigirte al investigador del estudio.

Los datos recogidos para el estudio estarán identificados mediante un código y solo los investigadores del estudio podrán relacionar estos datos contigo. Por tanto, tu identidad no será revelada a ninguna persona.

Tienes a tu disposición los teléfonos de información sobre este estudio per si quieres contactar con nosotros en el futuro.

CONTACTO: Si tienes cualquier duda, puedes contactar con nosotros en los siguientes teléfonos: 932 607 335 o 932 607 357 (de 9 h a 13 h), o bien escribimos un correo electrónico a: ectec@iconcologia.net

Si aceptas participar, entra en este [enlace](#).

¡Muchas gracias por tu colaboración!

Muy atentamente,

Dra. Cristina Martínez

PARA TODOS LOS PARTICIPANTES

1. ¿En que universidad estudiaste el grado de Enfermería durante el curso 2015–2016?

- Escuela Universitaria de Enfermería de Manresa
- Escuela Universitaria de Enfermería de Sant Joan de Deu
- Escuela Universitaria de Enfermería y Terapia Ocupacional de la Cruz Roja
- Escuela Universitaria de Enfermería Sant Pau
- Escuela Universitaria de Enfermería UB de Barcelona
- Escuela Universitaria de Enfermería Universitat Internacional de Catalunya
- Escuela Universitaria de Enfermería Vall d'Hebron
- Escuela Universitaria Gimbernat
- Escuela Superior de Ciencias de la Salud del Maresme
- Escuela Superior de Enfermería del Mar
- Facultad de Ciencias de la Salud Blanquerna
- Facultad de Ciencias de la Salud y el Bienestar UVIC UCC
- Facultad de Enfermería de la Universidad de Girona
- Facultad de Enfermería y Fisioterapia de la Universidad de Lérida
- Facultad de Enfermería de la Universidad de Lérida Campus de Igualada
- Universidad Rovira i Virgili

2. ¿Has finalizado los estudios del grado de Enfermería?

- No (Pasa a P3)
- Sí (Pasa a P6)

3. Respecto a tu situación académica o laboral, actualmente:

- Sigo estudiando el grado de Enfermería (Pasa a P4)
- Estoy estudiando otra formación (Pasa a P5)
- Estoy trabajando exclusivamente (Pasa a P9)
- Otra situación (Pasa a P9)

4. ¿Qué curso estás haciendo?

- 1º
 - 2º
 - 3º
 - 4º
- (Pasa a P9)

5. ¿Qué estudios estás haciendo?

- Otro grado universitario
 - Ciclo formativo de grado medio o superior
 - Otros
- (Pasa a P9)

6. Respecto a tu situación académica o laboral, actualmente:

- Estás trabajando como enfermero/a (Pasa a P7)
- Estás trabajando en otra ocupación (Pasa a P9)
- Estás en situación de desempleo (Pasa a P9)
- Otra situación (Pasa a P9)

7. ¿En qué ámbito estas trabajando?

- Hospitalario
- Atención primaria
- Otros

8. ¿En qué tipo de institución trabajas?

- Privada o concertada
- Pública
- Otros

9. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto a los cigarrillos tradicionales o manufacturados:

- Actualmente fumo cada día (al menos una vez al día)*
- Actualmente fumo ocasionalmente (no todos los días)*
- Ahora no fumo, pero antes fumaba cada día (al menos una vez al día)
- Ahora no fumo, pero antes fumaba ocasionalmente (no todos los días)
- No he fumado nunca

*Especifica la cantidad fumada en un día/semana.

10. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto a los cigarrillos hechos con tabaco de liar (picadura):

- Actualmente fumo cada día (al menos una vez al día)*
- Actualmente fumo ocasionalmente (no todos los días)*
- Ahora no fumo, pero antes fumaba cada día (al menos una vez al día)
- Ahora no fumo, pero antes fumaba ocasionalmente (no todos los días)
- No he fumado nunca

*Especifica la cantidad fumada en un día/semana.

11. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto a los puros, puritos, pipa:

- Actualmente fumo cada día (al menos una vez al día)*
- Actualmente fumo ocasionalmente (no todos los días)*
- Ahora no fumo, pero antes fumaba cada día (al menos una vez al día)
- Ahora no fumo, pero antes fumaba ocasionalmente (no todos los días)
- No he fumado nunca

*Especifica la cantidad fumada en un día/semana.

12. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto a la shisha, cachimba o pipa turca:

- Actualmente fumo cada día (al menos una vez al día)
- Actualmente fumo ocasionalmente (no todos los días)
- Ahora no fumo, pero antes fumaba cada día (al menos una vez al día)
- Ahora no fumo, pero antes fumaba ocasionalmente (no todos los días)
- No he fumado nunca

13. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto al tabaco sin combustión (ejemplo IQOS):

- Actualmente consumo cada día (al menos una vez al día)
- Actualmente consumo ocasionalmente (no todos los días)
- Ahora no consumo, pero antes consumía cada día (al menos una vez al día)
- Ahora no consumo, pero antes consumía ocasionalmente (no todos los días)
- Sé lo que es, pero no lo he consumido nunca
- No sé lo que es y no lo he consumido nunca

14. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto al cigarrillo electrónico:

- Actualmente consumo cada día (al menos una vez al día)
- Actualmente consumo ocasionalmente (no todos los días)
- Ahora no consumo, pero antes consumía cada día (al menos una vez al día)
- Ahora no consumo, pero antes consumía ocasionalmente (no todos los días)
- No he consumido nunca

15. De las siguientes afirmaciones, indica cuál describe mejor tu comportamiento respecto al cannabis (marihuana):

- Actualmente consumo cada día (al menos una vez al día)*
- Actualmente consumo ocasionalmente (no todos los días)*
- Ahora no consumo, pero antes consumía cada día (al menos una vez al día)
- Ahora no consumo, pero antes consumía ocasionalmente (no todos los días)
- No he consumido nunca

*Especifica la cantidad fumada en un día/semana.

PARA FUMADORES

16. ¿Qué edad tenías cuando empezaste a fumar? (Respuesta numérica)

17. El día que fumas, ¿cuánto tardas en fumar el primer cigarrillo desde que te levantas?

- 5 minutos o menos
- Entre 6 y 30 minutos
- Entre 31 y 60 minutos
- Más de 60 minutos

18. En el último mes, ¿has fumado alguna vez en los siguientes espacios cerrados?

- Lugar de trabajo
- Lugar de estudio
- No he fumado

19. En el último mes, ¿has fumado alguna vez en los siguientes espacios abiertos?

- Lugar de trabajo

- Lugar de estudio
- No he fumado

20. En el último año ¿has intentado seriamente dejar de fumar?

- Sí (Pasa a P21)
- No (Pasa a P22)

21. Indica el número de intentos de al menos 24 horas realizados en el último año:
(Respuesta numérica)

22. ¿Estás pensando seriamente en dejar de fumar?

- Sí, ahora
- Sí, de aquí a un mes
- Sí, de aquí a unos 3-6 meses
- Sí, de aquí a unos 7-12 meses
- Algún día
- No, no estoy pensando en dejar de fumar

23. ¿Estás pensando seriamente en reducir tu consumo?

- Sí
- No

(Pasa a la P27)

PARA EXFUMADORES

24. ¿Qué edad tenías cuando dejaste de fumar? (Respuesta numérica)

25. ¿Cuáles fueron los motivos por los cuales dejaste de fumar? (Admite respuesta múltiple)

- Para proteger mi salud
- Por indicación de un profesional sanitario
- Para dar ejemplo
- Por presión de familiares o amigos
- Para ahorrar
- Porque es importante para ejercer mi rol de enfermera
- Otros motivos

26. ¿Utilizaste algún tratamiento para dejar de fumar? (Admite respuesta múltiple)

- Chicles, comprimidos, spray bucal o parches de nicotina
- Medicamentos recetados (bupropion, vareniclina...)
- Apoyo profesional (médico, enfermera, psicólogo...)
- Acupuntura, homeopatía o hipnosis
- Otros
- No he utilizado ningún tratamiento

(Pasa a la P27)

PARA TODOS LOS PARTICIPANTES

27. En tu trabajo o universidad, ¿existe algún programa de ayuda a los trabajadores para dejar de fumar?

- Sí (Pasa a P28)
 No (Pasa a P29)
 No lo sé (Pasa a P29)

28. ¿Lo has utilizado?

- Sí
 No

29. Indica la frecuencia con la que has visto fumar en tu entorno en los últimos siete días (de nunca a muchas veces):

	Nunca	Rara vez	Alguna vez	Varias veces	Muchas veces	No lo sé / no lo recuerdo
En zonas <u>interiores</u> del campus universitario						
En zonas <u>exteriores</u> del campus universitario (incluyendo entrada, jardines, parking, etc.)						
En zonas <u>interiores</u> del lugar de trabajo						
En zonas <u>exteriores</u> del lugar de trabajo (incluyendo entrada, jardines, parking, etc.)						

30. Durante los últimos 7 días, ¿has estado expuesto/a alguna vez al humo del tabaco en tu entorno (campus universitario o lugar de trabajo)?

- No, no he estado expuesto/a
 Sí, pero sólo en el interior
 Sí, pero sólo en el exterior
 Sí, he estado expuesto/a en el interior y el exterior

31. ¿Cuál es tu grado de acuerdo con las siguientes afirmaciones?

	Totalmente de acuerdo	De acuerdo	Ni de acuerdo ni en desacuerdo	En desacuerdo	Totalmente en desacuerdo
Los profesionales de la salud deberían dar ejemplo y no fumar					
Los estudiantes de enfermería no deberían fumar					
Los profesionales de la salud deberían recibir formación sobre cómo ayudar a los pacientes a dejar de fumar					
Los profesionales de la salud deberían preguntar y registrar rutinariamente en la historia clínica el consumo de tabaco de sus pacientes					
Los profesionales de la salud deberían aconsejar rutinariamente a sus pacientes fumadores que dejen de fumar					
Las posibilidades de que un fumador deje de fumar aumentan cuando un profesional de la salud se lo aconseja					
Los profesionales de la salud que fuman tienden a aconsejar menos a sus pacientes que dejen de fumar					
El sistema público de salud debería financiar tratamientos eficaces para dejar de fumar					

32. De acuerdo con lo que sabes, ¿cuál es la normativa actual sobre consumo de tabaco que tienen los hospitales de agudos?

- Se puede fumar en cualquier lugar del hospital
- Sólo se puede fumar en determinadas áreas interiores destinadas para fumar
- Está prohibido fumar en todo el interior del edificio hospitalario
- Está prohibido fumar en todo el interior y se puede fumar en algunas zonas del exterior del campus hospitalario
- Está prohibido fumar en todo el área interior y exterior del centro hospitalario, incluidos jardines y zonas de paseo o tránsito, aparcamiento, etc.
- No conozco la normativa

33. ¿Cuál es tu grado de acuerdo con las siguientes afirmaciones?

	Totalmente de acuerdo	De acuerdo	Ni de acuerdo ni en desacuerdo	En desacuerdo	Totalmente en desacuerdo
El consumo de tabaco debe estar prohibido en el <u>interior</u> de los <u>recintos hospitalarios</u>					
El consumo de tabaco debe estar prohibido en el <u>exterior</u> de los <u>recintos hospitalarios</u>					
El consumo de tabaco debe estar prohibido en el <u>interior</u> de los <u>campus universitarios</u> de ciencias de la salud					
El consumo de tabaco debe estar prohibido en el <u>exterior</u> de los <u>campus universitarios</u> de cualquier tipo					

34. En relación a los contenidos impartidos en tu formación durante el grado de Enfermería:

	Sí	No
¿Te han hablado en alguna de las clases, seminarios o prácticas sobre los riesgos de fumar?		
¿Te han explicado la diferencia entre un fumador activo y pasivo?		
¿Se ha discutido en alguna de las clases, seminarios o prácticas los motivos por los cuales la gente fuma?		
¿Te han enseñado que es importante registrar el uso del tabaco en la historia clínica del paciente?		
¿Has recibido formación en técnicas para ayudar a los pacientes a dejar de fumar?		
¿Te enseñaron que es importante entregar material educativo para apoyar el proceso de cesación en pacientes que desean dejar de fumar?		
¿Conoces las terapias sustitutivas de nicotina para dejar de fumar?		
¿Conoces otros tratamientos farmacológicos para dejar de fumar?		
Actualmente tengo los conocimientos y habilidades suficientes para ayudar a un fumador a dejar de fumar		

35. Indica si las siguientes afirmaciones son verdaderas o falsas:

	Verdadero	Falso
El consumo de tabaco es una adicción		
La prevalencia de consumo de tabaco en España está aumentando en los últimos años		
La mortalidad asociada al tabaquismo en España está aumentando en los últimos años		
En España, las enfermedades cardiovasculares son la principal causa de enfermedad relacionada con el tabaquismo		
Respirar el humo del tabaco de los fumadores constituye un riesgo para la salud		
En el caso de las fumadoras embarazadas se recomienda consumir hasta un máximo de 5 cigarrillos diarios si sus niveles de ansiedad son altos		
El test de Fagerström sirve para evaluar la motivación para dejar de fumar		
La hipnosis es una terapia de eficacia probada para dejar de fumar		
El tabaquismo durante el embarazo incrementa el riesgo de muerte súbita del lactante		
El tabaquismo pasivo provoca cáncer de pulmón en los no fumadores		
Las guías basadas en la evidencia recomiendan el uso de tratamientos farmacológicos a fumadores de menos de 5 cigarrillos diarios		

36. Del 0 al 10 indica con qué frecuencia realizas las siguientes actividades como estudiante/enfermera durante una semana? (0=Nunca y 10=Siempre)

¿Con qué frecuencia PREGUNTAS Y DOCUMENTAS el consumo de tabaco de tus pacientes?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	N
¿Con qué frecuencia ACONSEJAS dejar de fumar a tus pacientes?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	N
¿Con qué frecuencia VALORAS el deseo de tus pacientes para dejar de fumar?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	N
¿Con qué frecuencia AYUDAS a tus pacientes a dejar de fumar (usando estrategias o técnicas para propiciar el cambio, estableciendo un día para dejar de fumar y/o mediante el uso de medicación)?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	N

ANEXOS

¿Con qué frecuencia RECOMIENDAS/INDICAS a tus pacientes medicación para dejar de fumar como tratamiento sustitutivo de nicotina, bupropion o vareniclina?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	N
¿Con qué frecuencia OFRECES SEGUIMIENTO a los pacientes como parte de la intervención para dejar de fumar mediante la programación de visitas sucesivas, derivando a otros profesionales, enviando una carta o recordatorio por correo, o realizando llamadas telefónicas de seguimiento?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	N

*N: no estoy en contacto con pacientes

37. En estos momentos convives con:

- El núcleo familiar
- Estoy independizado/a

38. Aproximadamente, ¿cuáles son los ingresos netos mensuales de tu núcleo de convivencia (familia, pareja, etc. o únicamente los tuyos en caso de que vivas solo)?

- No hay ingresos
- Menos de 900€
- De 901 a 1500€
- De 1501 a 3000€
- De 3001€ a 6000€
- De 6001€ a 9000€
- Más de 9000€
- No lo sé/ no quiero contestar

39. ¿Cuál es tu estado civil actual?

- Soltero/a
- Casado/a o en pareja
- Divorciado/a o separado/a
- Viudo/a

ANEXO 6

Correos electrónicos de recordatorio de la encuesta de
seguimiento (ECTEC-S)

Primer recordatorio

¡Hola [Nombre]!

Hace una semana te invitamos a participar en una **breve encuesta** relacionada con el seguimiento del estudio ECTEC en el que colaboraste durante el curso 2015–2016. ¿Lo recuerdas?

Bien, se trata de responder nuevamente a un breve cuestionario que te enviamos. Te cogerá solo unos pocos minutos de tu tiempo. Además, **si participas, entrarás en el sorteo de 300 €.**

¡Clica [aquí](#) para participar!

Te agradecemos tu interés y colaboración por adelantado,

Unidad de Control del Tabaco

ectec@iconcologia.net

932 607 335 / 932 607 357

Segundo recordatorio

¡Hola [Nombre]!

Hace un mes te pedimos que participes en una **breve encuesta** relacionada con el seguimiento del estudio ECTEC. ¿Aún no lo has hecho?

Pues se trata de responder una breve un cuestionario en línea que te llevará solo unos minutos. Si has entrado, pero no has completado todas las preguntas, aún estás a tiempo de acabarla ya que las respuestas se guardan automáticamente.

Venga, **¡hazlo y entrarás en el sorteo de un vale regalo de 300 €!**

Aquí tienes el enlace para participar: [URL de la encuesta]

Te agradecemos tu interés y colaboración,

Unidad de Control del Tabaco

ectec@iconcologia.net

932 607 335 / 932 607 357

Tercer recordatorio

¡Hola [Nombre]!

Hace dos meses te pedimos que participes en una **breve encuesta** relacionada con el seguimiento del estudio ECTEC.

Queremos recordarte que la encuesta sigue abierta y, completarla, solo te llevará unos minutos. Si lo haces, entrarás en el sorteo de un vale regalo de 300 €.

Clica en el siguiente enlace para entrar a la encuesta: [URL de la encuesta]

[Se adjunta el vídeo disponible a través del siguiente enlace:
https://drive.google.com/file/d/1fnGJ8_CROXG67tWEA5MdBiyw-QuRPqRI/view?usp=drive_link]

Te agradecemos tu interés y colaboración,

Unidad de Control del Tabaco

ectec@iconcologia.net

932 607 335 / 932 607 357

Cuarto recordatorio

¡Hola [Nombre]!

Quedan pocos días para que se cierre la encuesta. ¿Te quedarás sin participar?

Muchos otros compañeros ya lo han hecho. Es muy fácil, **entra ya a este [enlace](#)**.

Podrás ganar un vale regalo de 300 € para comprarte lo que quieras.

[Se adjunta infograma de la siguiente página]

Te agradecemos tu interés y colaboración,

Unidad de Control del Tabaco

ectec@iconcologia.net

932 607 335 / 932 607 357

ECTEC -S



2ª FASE DEL ESTUDIO

OBJETIVO

CONOCER LOS CAMBIOS EN EL CONSUMO DE TABACO Y LOS CONOCIMIENTOS EN TABAQUISMO EN UNA COHORTE DE ESTUDIANTES DE ENFERMERÍA



EL ESTUDIO INICIAL
SE REALIZÓ
EN EL CURS 2015-16
CON UNA PARTICIPACIÓN
TOTAL DE 4.381 ESTUDIANTES.

HASTA EL MOMENTO, 992 DE LOS PARTICIPANTES HAN CONTESTADO EL CUESTIONARIO ENVIADO POR EL EQUIPO INVESTIGADOR.

992
ESTUDIANTES

GRACIAS A LOS RESULTADOS OBTENIDOS SE GENERARÁN PROPUESTAS DE MEJORA EN LA FORMACIÓN CURRICULAR EN TABAQUISMO QUE RECIBEN LOS ESTUDIANTES DEL GRADO DE ENFERMERÍA

!PARTICIPA!

Quinto recordatorio

¡Hola [Nombre]!

El día 22 de diciembre se cerrará la encuesta de seguimiento del estudio ECTEC. **Tu participación es muy importante** para contribuir a favor de la profesión enfermera. Además, entre los participantes, sortearemos un vale regale de 300 €.

Mediante este [enlace](#) puedes acceder directamente a la encuesta.

Te agradecemos tu interés y colaboración,

Unidad de Control del Tabaco

ectec@iconcologia.net

932 607 335 / 932 607 357

Sexto (y último) recordatorio

Hola [Nombre],

Hemos visto que has entrado a la encuesta online del estudio ECTEC-S, pero no la has completado o enviado correctamente.

Por suerte aún estás a tiempo de hacerlo. **¡No dejes perder esta última oportunidad!**

Recuerda que en el sorteo del vale regalo de 300 € solo entrarán aquellos que completen el cuestionario y lo envíen correctamente.

Clica [aquí](#) para entrar.

Tu participación es muy importante para la investigación en Enfermería.

¡Muchas gracias por participar!

Unidad de Control del Tabaco

ectec@iconcologia.net

932 607 335 / 932 607 357

ANEXO 7

Aprobación del Comité de Ética de Investigación Clínica del
Hospital Universitario de Bellvitge

**INFORME DEL COMITÉ ÉTICO DE INVESTIGACIÓN CLÍNICA
SOBRE ENMIENDAS POR CAMBIO ADMINISTRATIVO
A PROYECTOS DE INVESTIGACIÓN**

El Comité de Ética de Investigación Clínica del Hospital Universitari de Bellvitge, mediante el procedimiento de evaluación rápida de la documentación contemplado en las Normas de Funcionamiento Interno del Comité, ha evaluado la siguiente documentación presentada sobre el proyecto de investigación con nuestra ref. **PR239/18**, titulado:

“ESTUDIO DE SEGUIMIENTO DEL CONSUMO DE TABACO EN ESTUDIANTES DEL GRADO UNIVERSITARIO DE ENFERMERÍA (ECTEC-S)”.

- Protocolo Versión 2 Junio 2018.
- Full d'informació al pacient.

Presentado por la Dra. Cristina Martínez Martínez del Programa de Prevención y Control del Cáncer (Unidad de Control del Tabaco) del Institut Català d'Oncologia (ICO), como investigadora principal y promovido por el Institut Català d'Oncologia (ICO), ha acordado emitir INFORME FAVORABLE a la documentación mencionada.

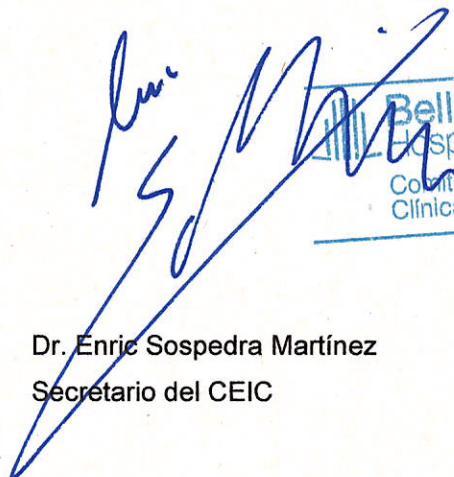
Que la composición actual del Comité de Ética de Investigación Clínica es la siguiente:

Presidente	Dr. Francesc Esteve Urbano	Médico - Medicina Intensiva
Vicepresidente	Dra. Pilar Hereu Boher	Médico - Farmacología Clínica
Secretario	Dr. Enric Sospedra Martínez	Farmacéutico - Farmacia Hospitalaria
Vocales:	Dr. Jordi Adamuz Tomás	Enfermero – Enfermería
	Dra. María Berdasco Menéndez	Bióloga - miembro no sanitario
	Dra. Concepción Cañete Ramos	Médico - Neumología
	Dr. Enric Condom Mundo	Médico - Anatomía Patológica
	Dr. Xavier Corbella Virós	Médico - Medicina Interna
	Sra. Consol Felip Farrás	Miembro Laico - Docencia
	Dr. José Luis Ferreiro Gutiérrez	Médico - Cardiología
	Dra. Ana María Ferrer Artola	Farmacéutica - miembro sanitario
	Dr. Josep Ricard Frago Montanuy	Médico - Cirugía General y Digestiva
	Dr. Xavier Fulladosa Oliveras	Médico - Nefrología
	Dra. Margarita García Martín	Médico - Oncología Médica
	Dr. Carles Lladó i Carbonell	Médico- Urología
	Dr. Josep Manel Llop Talaveron	Farmacéutico – Farmacia Hospitalaria
	Sra. Sonia López Ortega	Graduado Social - Atención a la Ciudadanía

Dr. Sergio Morchón Ramos	Médico - Medicina Preventiva
Dr. Joan Josep Queralt Jiménez	Jurista
Dr. Ricard Ramos Izquierdo	Médico - Cirugía Torácica
Dra. Gemma Rodríguez Palomar	Farmacéutica – Atención Primaria
Dra. Nuria Sala Serra	Bióloga - miembro no sanitario
Dr. Petru Cristian Simon	Médico - Farmacología Clínica

Que este Comité cumple la legislación española vigente para este tipo de proyectos, así como las normas ICH y las Normas de Buena Práctica Clínica.

Lo que firmo en L'Hospitalet de Llobregat a 16 de julio de 2018




Dr. Enric Sospedra Martínez
Secretario del CEIC

ANEXO 8

Aprobación de la Comisión de Bioética de la Universidad de
Barcelona



COMISSIÓ DE BIOÈTICA

Gemma Marfany i Nadal, Secretaria de la Comissió de Bioètica de la Universitat de Barcelona

CERTIFICA

Que analitzada la sol·licitud presentada per la Sra. Kenza Laroussy, doctoranda en el departament i referent a la Tesi intitulada **“Estudio de seguimiento del consumo de tabaco y nivel de conocimiento de una cohorte de estudiantes de Enfermería en Catalunya (ECTEC-S)”** dirigida per la Cristina Martínez Martínez i Dr. Esteve Fernández Muñoz, aquesta Comissió, per acord de data 5 d'octubre de 2020 , va aprovar informar favorablement des del punt de vista bioètic, la realització de l'esmentada tesi.

I perquè en quedi constància a tots els efectes, signa aquest document, amb el vist i plau del President de la Comissió, a Barcelona, 5 d'octubre de 2020 .



Universitat de Barcelona
Comissió de Bioètica

Vist i Plau
El president de la Comissió de Bioètica
de la Universitat de Barcelona


Domènec Espriu Climent

ANEXO 9

Artículo III: Tabla suplementaria

Table S1: Baseline (2015-16) and follow-up (2018-19) sociodemographic characteristics of the followed participants according to sex

	Total		Sex				p-value*
			Male		Female		
	n	%	n	%	n	%	
Overall	1085	100	115	10.6	970	89.4	
Characteristics at baseline							
Age group							<0.01
≤19 years	404	37.5	27	23.5	377	39.2	
20-24 years	527	49.0	61	53.0	466	48.5	
≥25 years	145	13.5	27	23.5	118	12.3	
Year in nursing school							0.841
First	384	36.3	37	33.6	347	36.6	
Second	280	26.5	28	25.5	252	26.6	
Third	210	19.8	23	20.9	187	19.7	
Fourth	184	17.4	22	20.0	162	17.1	
Place of birth							0.586
Catalonia	860	81.1	93	83.0	767	80.9	
Outside of Catalonia	200	18.9	19	17.0	181	19.1	
Location of nursing school							0.727
Barcelona	864	79.6	93	80.9	771	79.5	
Outside of Barcelona	221	20.4	22	19.1	199	20.5	
Type of nursing school							0.521
Public	469	43.2	44	38.3	425	43.8	
Private with public funding	203	18.7	23	20.0	180	18.6	
Private	413	38.1	48	41.7	365	37.6	
Characteristics at follow-up							
Has finished degree							0.908
Yes	647	59.6	68	59.1	579	59.7	
No	438	40.4	47	40.9	391	40.3	
Occupation							0.885
Nursing student	408	37.6	43	37.4	365	37.6	
Nurse	647	59.6	68	59.1	579	59.7	
Other	30	2.8	4	3.5	26	2.7	
Year in nursing school (students)							<0.05
Second or third	101	24.8	5	11.6	96	26.3	
Fourth	307	75.2	38	88.4	269	73.7	
Work area (nurses)							0.475
Hospital	458	79.9	49	76.6	409	80.4	
Other	115	20.1	15	23.4	100	19.6	
Type of institution they work in (nurses)							0.233
Public	282	49.2	27	42.2	255	50.1	
Other	291	50.8	37	57.8	254	49.9	
Living							0.472
With family	692	67.6	71	64.5	621	67.9	
Independent	332	32.4	39	35.5	293	32.1	
Monthly income							0.917
≤1500€	278	25.6	28	24.3	250	25.8	
1501€-3000€	345	31.8	35	30.4	310	32.0	
>3000€	220	20.3	26	22.6	194	20.0	
Does not know/Does not answer	242	22.3	26	22.6	216	22.3	
Marital status							0.635
Single	796	78.0	87	79.8	709	77.8	
Other	224	22.0	22	20.2	202	22.2	

*Chi-square test (male vs. female)

ANEXO 10

Artículo V: Tablas suplementarias

Table S1: Sociodemographic characteristics of the followed smoker participants at baseline and follow-up according to sex and baseline smoking status

	Total		Sex				Baseline smoking status					
			Male		Female		Daily smoker		Nondaily smoker			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>p</i> -value ^a	<i>p</i> -value ^b
Overall	276	100	35	12.7	241	87.3	170	61.6	106	38.4		
Characteristics at baseline												
Age group											0.044	< 0.001
≤19 years	88	32.2	7	20.0	81	34.0	39	23.1	49	47.1		
20–24 years	137	50.2	17	48.6	120	50.5	94	55.6	43	41.4		
≥25 years	48	17.6	11	31.4	37	15.5	36	21.3	12	11.5		
Year in nursing school											0.482	0.125
First	99	36.4	10	29.4	89	37.4	56	33.1	43	41.7		
Second	67	24.6	8	23.5	59	24.8	38	22.5	29	28.2		
Third	59	21.7	7	20.6	52	21.8	43	25.5	16	15.5		
Fourth	47	17.3	9	26.5	38	16.0	32	18.9	15	14.6		
Place of birth											0.593	0.070
Catalonia	232	86.2	28	82.4	204	86.8	149	89.2	83	81.4		
Outside of Catalonia	37	13.8	6	17.6	31	13.2	18	10.8	19	18.6		
Location of the nursing											0.582	0.103
Barcelona	236	85.5	31	88.6	205	85.1	150	88.2	86	81.1		
Outside of Barcelona	40	14.5	4	11.4	36	14.9	20	11.8	20	18.9		
Type of nursing school											0.587	0.104
Public	91	33.0	9	25.7	82	34.0	48	28.2	43	40.6		
Private with public funding	66	23.9	10	28.6	56	23.2	43	25.3	23	21.7		
Private	119	43.1	16	45.7	103	42.8	79	46.5	40	37.7		
Characteristics at follow-up												
Finished nursing degree											0.878	0.225
Yes	161	58.3	20	57.1	141	58.5	104	61.2	57	53.8		
No	115	41.7	15	42.9	100	41.5	66	38.8	49	46.2		
Occupation											0.782	0.177
Nursing students	103	37.3	14	40.0	89	36.9	58	34.1	45	42.5		
Nurses	161	58.3	20	57.1	141	58.5	104	61.2	57	53.8		
Other	12	4.4	1	2.9	11	4.6	8	4.7	4	3.7		
Year in nursing school (students)											0.729	0.931
Second or third	21	20.4	2	14.3	19	21.3	12	20.7	9	20.0		
Fourth	82	79.6	12	85.7	70	78.7	46	79.3	36	80.0		
Work area (nurses)											0.741	0.264
Hospital	115	82.1	14	77.8	101	82.8	74	79.6	41	87.2		
Other	25	17.9	4	22.2	21	17.2	19	20.4	6	12.8		
Type of institution they work in											0.312	0.477
Public	66	47.1	6	33.3	60	49.2	46	49.5	20	42.6		
Other	74	52.9	12	66.7	62	50.8	47	50.5	27	57.4		
Living status											0.295	0.176
With family	157	61.1	18	52.9	139	62.3	92	57.9	65	66.3		
Independent	100	38.9	16	47.1	84	37.7	67	42.1	33	33.7		
Household monthly income											0.722	0.213
≤€1500	82	29.8	12	34.3	70	29.1	51	30.0	31	29.3		
€1501–3000	81	29.3	11	31.4	70	29.0	53	31.2	28	26.4		
>€3000	50	18.1	4	11.4	46	19.1	34	20.0	16	15.1		
Do not know/Did not	63	22.8	8	22.9	55	22.8	32	18.8	31	29.2		
Marital status											0.585	0.333
Single	181	70.7	22	66.7	159	71.3	109	68.6	72	74.2		
Other	75	29.3	11	33.3	64	28.7	50	31.4	25	25.8		

^aChi-square test (male vs. female)^bChi-square test (daily smoker vs. nondaily smoker)

Table S2: Tobacco use patterns at follow-up among smokers in a cohort of nursing students

	Follow-up smoking status						<i>p</i> -value ^a
	Daily smoker			Nondaily smoker			
	<i>n</i>	%	95 CI%	<i>n</i>	%	95 CI%	
Overall	144	72.7	66.2–78.6	54	27.3	21.4–33.8	
Age at smoking initiation							0.121
<17 years	102	70.8	63.1–77.8	32	59.3	46.0–71.6	
≥17 years	42	29.2	22.2–36.9	22	40.7	28.4–54.0	
Type of tobacco use							0.606
Exclusive cigarette use	109	76.2	68.8–82.6	36	67.9	54.7–79.3	
Polytobacco use	34	23.8	17.4–31.2	17	32.1	20.7–45.3	
Other product used (in case of polytobacco use)							
Cigars, cigarrillos, little cigars	1	0.7	0.1–3.6	1	1.9	0.2–8.5	1.000
Electronic cigarettes	2	1.4	0.3–4.4	2	3.8	0.8–11.6	0.576
Water pipes	14	9.8	5.7–15.5	13	24.5	14.5–37.2	0.008
HTPs	3	2.1	0.6–5.5	1	1.9	0.2–8.5	1.000
Cannabis	20	14.0	9.0–20.4	7	13.2	6.1–24.2	0.888
Number of cigarettes per day							< 0.01
<10	80	55.6	47.4–63.5	53	100	-	
10–19	46	31.9	24.7–39.9	0	0	-	
≥20	18	12.5	7.9–18.6	0	0	-	
Heaviness of smoking index							0.383
Low (0–2)	101	76.5	68.8–83.1	42	100	-	
Medium and high (3–6)	31	23.5	16.9–31.2	0	0	0	
Quit attempts in the last year							0.176
Yes	33	25.0	18.2–32.9	15	35.7	22.6–50.8	
No	99	75.0	67.1–81.8	27	64.3	49.2–77.4	
Number of quit attempts							1.000
1	11	33.3	19.2–50.3	5	33.3	14.0–58.4	
≥2	22	66.7	49.7–80.8	10	66.7	41.6–86.0	
Are you seriously thinking about quitting now?							0.229
Yes	118	89.4	83.3–93.8	33	78.6	64.5–88.8	
No	14	10.6	6.2–16.7	9	21.4	11.2–35.5	
Are you thinking about cutting back consumption?							< 0.01
Yes	99	75.0	67.1–81.8	20	47.6	33.1–62.5	
No	33	25.0	18.2–32.9	22	52.4	37.5–66.9	

^aChi-square test (daily smoker vs. nondaily smoker)

Table S3: Follow-up sociodemographic characteristics and tobacco use patterns among smokers in a cohort of nursing students, according to type of tobacco use

	Type of tobacco use at follow-up						p-value ^b
	Exclusive cigarette use ^a			Polytobacco use			
	n	%	95 CI%	n	%	95 CI%	
Overall	14	74.0	67.5–79.7	51	26.0	20.3–32.5	
Sex							0.511
Male	15	10.3	6.2–16.1	7	13.7	6.4–25.1	
Female	13	89.7	83.9–93.8	44	86.3	74.9–93.6	
Age group							< 0.05
<22 years	35	24.5	18.0–32.0	20	39.2	26.7–52.9	
23–24 years	39	27.3	20.5–35.0	22	43.1	30.2–56.8	
≥25 years	69	48.3	40.2–56.4	9	17.6	9.1–29.7	
Finished nursing degree							< 0.001
Yes	96	66.2	58.2–73.5	16	31.4	19.9–44.9	
No	49	33.8	26.5–41.8	35	68.6	55.1–80.1	
Occupation							< 0.001
Nursing students	40	27.6	20.8–35.3	34	66.7	53.1–78.4	
Nurses	96	66.2	58.2–73.5	16	31.3	19.9–44.9	
Other situations	9	6.2	3.1–11.0	1	2.0	0.8–8.8	
Year of degree (nursing students)							0.119
Second or third	12	30.0	17.6–45.2	5	14.7	5.8–29.3	
Fourth	28	70.0	54.8–82.4	29	85.3	70.7–94.2	
Work area (nurses)							0.471
Hospital	70	81.4	72.2–88.5	10	71.4	45.5–89.5	
Other	16	18.6	11.5–27.8	4	28.6	10.5–54.5	
Type of institution they work in (nurses)							0.775
Public	43	50.0	39.6–60.4	8	57.1	31.9–79.7	
Private or Private with public	43	50.0	39.6–60.4	6	42.9	20.3–38.1	
Living status							0.331
With family	86	64.2	55.8–71.9	27	56.3	42.2–69.6	
Independent	48	35.8	28.1–44.2	21	43.7	30.4–57.8	
Household monthly income							0.527
≤€1500	40	27.6	20.8–35.3	19	37.3	25.0–50.9	
€1501–3000	37	25.5	19.0–33.0	12	23.5	13.6–36.4	
>€3000	31	21.4	15.3–28.6	11	21.6	12.0–34.2	
Do not know/Did not answer	37	25.5	19.0–33.0	9	17.6	9.1–29.7	
Marital status							0.052
Single	90	67.7	59.4–75.2	40	83.3	71.0–91.8	
Other	43	32.3	24.8–40.6	8	16.7	8.2–29.0	
Number of cigarettes per day							0.668
<10	99	68.8	60.9–75.9	33	64.7	51.1–76.7	
10–19	31	21.5	15.4–28.8	14	27.5	16.7–40.7	
≥20	14	9.7	5.7–15.4	4	7.8	2.7–17.6	
Heaviness of smoking index							0.807
Low (0–2)	10	81.7	74.3–87.7	40	83.3	71.0–91.8	
Medium and high (3–6)	23	18.3		8	16.7	8.2–29.0	
Quit attempts in the last year							0.154
Yes	31	24.6	17.7–32.6	17	41.2	23.1–49.5	
No	95	75.4	67.4–82.3	31	64.6	50.5–76.9	
Number of quit attempts							0.393
1	9	29.0	15.4–46.3	7	41.2	20.7–64.4	
≥2	22	71.0	53.7–84.6	10	58.8	35.6–79.3	
Are you seriously thinking about quitting now?							0.407
Yes	11	88.1	81.6–92.9	40	83.3	71.0–91.8	
No	15	11.9	7.1–18.4	8	16.7	8.2–29.0	0.505
Are you thinking about cutting back consumption?							
Yes	88	69.8	61.4–77.3	31	64.6	50.5–76.9	
No	38	30.2	22.7–38.6	17	35.4	23.1–49.5	

^aMF/RYO cigarettes^bChi-square test (exclusive cigarette use vs.

ANEXO 11

Artículo VI: Tabla suplementaria

Table S1: Descriptive baseline (2015–2016) and follow-up (2018–2019) sociodemographic characteristics of the followed

	Total		Sex				p-value*
	n	%	Male		Female		
			n	%	n	%	
Overall	1097	100	117	10.7	980	89.3	
Characteristics at baseline							
Age group							<0.001
≤19 years	409	37.6	27	23.1	382	39.3	
20–24 years	531	48.8	63	53.8	468	48.2	
≥25 years	148	13.6	27	23.1	121	12.5	
Year of school							0.332
First and second	671	62.8	65	58.6	606	63.3	
Third and fourth	398	37.2	46	41.4	352	36.7	
Place of birth							0.481
Catalonia	867	80.9	95	83.3	772	80.6	
Outside of Catalonia	205	19.1	19	16.7	186	19.4	
Location of the nursing school							0.646
Barcelona	873	79.6	95	81.2	778	79.4	
Outside of Barcelona	224	20.4	22	18.8	202	20.6	
Type of nursing school							0.416
Public	474	43.2	44	37.6	430	43.9	
Private with public funding	205	18.7	23	19.7	182	18.6	
Private	418	38.1	50	42.7	368	37.6	
Characteristics at follow-up							
Have finished degree							0.989
Yes	657	59.9	70	59.8	587	59.9	
No	440	40.1	47	40.2	393	40.1	
Occupation							0.917
Nursing students	409	37.3	43	36.8	366	37.3	
Nurses	657	59.9	70	59.8	587	59.9	
Other	31	2.8	4	3.4	27	2.8	
Year of school (nursing students)							<0.05
Second or third	101	24.7	5	11.6	96	26.2	
Fourth	308	75.3	38	88.4	270	73.8	
Work area (nurses)							0.514
Hospital	464	80.1	50	76.9	414	80.5	
Primary care	58	10.0	6	9.2	52	10.1	
Other	57	9.8	9	13.8	48	9.3	
Type of institution they work (nurses)							0.263
Public	285	49.4	27	41.5	258	50.4	
Private or private with public funding	287	49.7	38	58.5	249	48.6	
Other	5	0.9	0	0.0	5	1.0	
Living							0.445
With family	695	67.5	72	64.3	623	67.9	
Independent	335	32.5	40	35.7	295	32.1	
Household monthly income							0.832
≤€1500	279	25.4	28	23.9	251	25.6	
€1501–€3000	346	31.5	35	29.9	311	31.7	
€3001–€6000	184	16.8	22	18.8	162	16.5	
>€6000	39	3.6	6	5.1	33	3.4	
Do not know/Did not answer	249	22.7	26	22.2	223	22.8	
Marital status							0.519
Single	798	77.8	89	80.2	709	77.5	
Other	228	22.2	22	19.8	206	22.5	

*Chi-square test (male vs. female)

ANEXO 12

Currículum vitae

Curriculum vitae

La autora de esta tesis, Kenza Laroussy, obtuvo los títulos de Grado de Enfermería en el año 2016 y Máster Universitario de Enfermería Práctica Clínica Avanzada (MUIPCA) en el 2017 por la Universidad de Barcelona. En la actualidad opta al título de Doctorado en Enfermería y Salud en la Universidad de Barcelona.

En el desarrollo de su práctica profesional, ha colaborado como investigadora en el proyecto '*Five Centuries of Marriage*' del Centro de Estudios Demográficos (CED) de la Universidad Autónoma de Barcelona (UAB) dirigido por la Dra. Anna Cabré y financiado por el *European Research Council* (GRANT ERC-2010-AdG_20100407), en el año 2012. También ha colaborado como investigadora asociada en el proyecto '*Descripció de l'impacte de l'aplicació del RD 954/2015 sobre la prescripció infermera en Atenció Primària*' dirigido por la *Asociació d'Infermera Familiar i Comunitària de Catalunya* (AIFICC) (FJGiG P18/025). En el 2018, se incorporó a la Unidad de Control de Tabaco (UCT) del Instituto Catalán de Oncología (ICO) para llevar a cabo el proyecto ECTEC-S (Estudio de Seguimiento del Consumo de Tabaco entre estudiantes del grado universitario de Enfermería de Cataluña).

Paralelamente, ha llevado a cabo la labor de enfermera familiar y de atención comunitaria en el *Consorti Sanitari de Terrassa*, donde cuenta con casi 6 años de experiencia.

ANEXO 13

Comunicaciones derivadas de la tesis y premios

Artículos publicados

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1. Martínez, C., Baena, A., Castellano, Y., Fu, M., Margalef, M., Tigova, O., Feliu, A., Laroussy, K., Galimany, J., Puig, M., Bueno, A., López, A., Fernández, E. (2019). **Prevalence and determinants of tobacco, e-cigarettes, and cannabis use among nursing students: A multicenter cross-sectional study.** *Nurse Education Today*, 74, 61-68. <https://doi.org/10.1016/j.nedt.2018.11.018>

 2. Laroussy, K., Castellano, Y., Fu, M., Baena, A., Feliu, A., Margalef, M., Aldazabal, J., Tigova, O., Galimany, J., Puig, M., Moreno, C., Bueno, A., López, A., Roca, J., Fernández, E., Martínez, C. (2022). **Determinants of participation in an online follow-up survey among nursing students.** *Journal of Professional Nursing*, 41(108-114). <https://doi.org/10.1016/j.profnurs.2022.04.008>

 3. Martínez, C., Castellano, Y., Laroussy, K., Fu, M., Baena, A., Margalef, M., Feliu, A., Aldazabal, J., Tigova, O., Galimany, J., Llobet, M. P., Moreno, C., Bueno, A., López, A., Guydish, J., & Fernández, E. (2023). **Knowledge, attitudes, and training in tobacco dependence and cessation treatment among Nursing Students in Catalonia (ECTEC Study): Cross-Sectional Study.** *International journal of mental health and addiction*, 21(2), 1041–1056. <https://doi.org/10.1007/s11469-021-00640-w>

 4. Laroussy, K., Castellano, Y., Fu, M., Baena, A., Feliu, A., Peruga, A., Margalef, M., Aldazabal, J., Tigova, O., Galimany, J., Puig, M., Moreno, C., Bueno, A., López, A., Roca, J., Saura, J., Fernández, E., & Martínez, C. (2023). **Transitions in smoking status in nursing students: A prospective longitudinal study.** *Journal of advanced nursing*, 10.1111/jan.15665. Advance online publication. <https://doi.org/10.1111/jan.15665>

 5. Fu, M., Castellano, Y., Laroussy, K., Baena, A., Margalef, M., Feliu, A., Galimany, J., Puig, M., Moreno, C., Sancho, R., Bueno, A., López, A., Guydish, J., Fernández, E., & Martínez, C. (2023). **Passive exposure and perceptions of smoke-free policies in hospital and university campuses among nursing students: A cross-sectional multicenter study.** *Tobacco induced diseases*, 21: 93. <https://doi.org/10.18332/tid/167390>
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Presentaciones en congresos

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1. Martínez, C., Baena, A., Fu, M., Castellano, Y., Bueno A., López B., Laroussy, K., Fernández, E. **Consumo de tabaco y cannabis en estudiantes del grado de Enfermería de Cataluña (Estudio ECTEC)**. Congreso: XXXVI Reunión Anual de la Sociedad Española de Epidemiología (SEE) y XIII Congresso da Associação Portuguesa de Epidemiologia (APE). Lugar: Lisboa (Portugal). Año: 2018. Tipo de presentación: comunicación oral.

 2. Martínez, C., Baena, A., Castellano, Y., Fu, M., Margalef, M., Laroussy, K., Aldazabal, J., Tigova, O., Feliu, A., Galimany, J., Puig, M., Moreno, C., Bueno, A., López, A., Fernández, E. **Actituds, formació i coneixements en tabaquisme en les estudiants del grau d'Infermeria a Catalunya**. Jornada Enfermería en Tabaquismo. Lugar: Barcelona. Año: 2019. Tipo de presentación: poster.

 3. Laroussy, K., Baena, A., Castellano, Y., Fu, M., Galimany, J., Margalef, M., Puig, M., Martínez, C., Fernández, E., Grupo de trabajo ECTEC. **Conocimientos, actitudes y formación en tabaquismo en los estudiantes del grado de Enfermería en Cataluña**. Congreso: XXIII Encuentro Internacional de Investigación en Cuidados (investen-isciii). Lugar: Barcelona. Año: 2019. Tipo de presentación: comunicación oral.

 4. Laroussy, K., Castellano, Y., Baena, A., Margalef, M., Fernández, E., Martínez, C. **Determinantes de seguimiento de una cohorte de estudiantes de Enfermería mediante una encuesta online**. Congreso: XXIV Encuentro Internacional de Investigación en Cuidados (investen-isciii). Lugar: Barcelona. Año: 2020. Tipo de presentación: comunicación oral.

 5. Laroussy, K., Castellano, Y., Baena, A., Margalef, M., Feliu, A., Martínez, C., Fernández, E. **Transiciones en el consumo de tabaco en una cohorte de estudiantes de Enfermería: Estudio ECTEC-S**. XII Congreso de Prevención y Control del Tabaquismo del CNPT. Lugar: Online. Año: 2022. Tipo de presentación: comunicación oral.

 6. Laroussy, K., Castellano, Y., Feliu, A., Fu, M., Margalef, M., Tigova, O., Martínez, C., Fernández, E. **Cambios en el patrón de consumo de tabaco en una cohorte de estudiantes de Enfermería de Cataluña: Estudio ECTEC-S**. Congreso: XXVI
-

Encuentro Internacional de Investigación en Cuidados (investen-isciii). Lugar: Pamplona. Año: 2022. Tipo de presentación: comunicación oral.

7. Castellano, Y., Fu, M., Laroussy, K., Baena, A., Feliu, A., Bueno, A., López, A., Guydish, J., Fernández, E., Martínez, C. **Nursing students' perception towards smoke-free regulations in hospitals and university campuses: a cross-sectional multicenter study.** Congreso: 9th European Conference on Tobacco Control or Health – XII CNPT Annual Congress. Lugar: Madrid. Año: 2023. Tipo de presentación: poster.

 8. Laroussy, K., Castellano, Y., Fu, M., Margalef, M., Fernández, E, Martínez, C. **Canvis en el patró de consum de tabac en una cohort d'estudiants d'Infermeria de Catalunya: Estudi ECTEC-S.** XIII Jornada Societat Catalana d'Atenció i Tractament del Consum del Tabac. Lugar: Barcelona. Año: 2023. Tipo de presentación: comunicación oral.

 9. Laroussy, K., Castellano, Y., Fu, M., Margalef, M., Fernández, E, Martínez, C. **Changes in tobacco use patterns among smokers of a cohort of nursing students in Catalonia: ECTEC-S study.** PhD Day Conference – Instituto de Investigación Biomédica de Bellvitge (Idibell). Lugar: Barcelona. Año 2023. Tipo de presentación: comunicación oral.
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Premios

- 1. Primer premio a la mejor comunicación oral**, titulada 'Transiciones en el consumo de tabaco en una cohorte de estudiantes de Enfermería: Estudio ECTEC-S', en el XII Congreso de Prevención y Control del Tabaquismo del CNPT en 2022.
 - 2. Primer premio a la mejor comunicación oral**, titulada 'Canvis en el patró de consum de tabac en una cohort d'estudiants d'Infermeria de Catalunya: Estudi ECTEC-S', en la XIII Jornada de la Societat Catalana d'Atenció i Tractament del Consum del Tabac en 2023.
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