ΔΙΔΑΚΤΟΡΙΚΗ ΔΙΑΤΡΙΒΗ

Αξιολόγηση της αποτελεσματικότητας μιας εκπαιδευτικής παρέμβασης για την ενσωμάτωση της διακοπής του καπνίσματος στην καθημερινή κλινική πρακτική της Πρωτοβάθμιας Φροντίδας Υγείας, στην Κρήτη

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UNIVERSITY OF CRETE - FACULTY OF MEDICINE

POSTGRADUATE PROGRAMME

PUBLIC HEALTH & HEALTH CARE MANAGEMENT

DOCTOR OF PHILOSOPHY THESIS

Evaluation of an evidence-based educational intervention aiming to integrate treatment of tobacco dependence into daily clinical practice in Primary Health Care in Crete

CHARIS A. GIRVALAKI

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Author's declaration

I, **Charis A. Girvalaki** declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

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Charis A. Girvalaki©

Dedication

To my niece Georgia, my nephew Anthony
&
To those who believe in the beauty of their dreams

"Grandfather", I called more loudly now, "Give me a more difficult, a more Cretan command."
"Reach what you cannot my child"

Report to Greco, Nikos Kazantzakis

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Nobody has been more important to me in the pursuit of this PhD thesis than the members of my family. I would like to thank my parents Anthony and Georgia, my brother Manos, my sister in law Eleni and my "extended family" – my dear friends Aristea, Theodoros and George whose love and guidance are with me in whatever I pursue.

"I am incapable of conceiving infinity, and yet I do not accept finity. I want this adventure that is the context of my life to go on without end."

Simone de Beauvoir, La Vieillesse

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Abbreviations

95% CI = 95% confidence intervals

AOR = adjusted odds ratios

COPD = chronic obstructive pulmonary disease

ENSP = European Network for Smoking and Tobacco Prevention

EU = European Union

FCTC = Framework Convention on Tobacco Control

GPs = General Practitioners

NHS = National Health Service

NRTs = Nicotine Replacement Therapies

OMSC = Ottawa Model for Smoking Cessation

PBC = Perceived Behavioral Control

QALY = Quality-adjusted life year

TiTAN Crete = Tobacco treatment TrAining Network in Crete

TPB = Theory of Planned Behavior

USDHHS = United States Department of Human Health Service

WHO = World Health Organization

WONCA = World organization of Family Doctors

List of original publications

Publication #1

Girvalaki C, Papadakis S, Vardavas C, Pipe A, Lionis C. (2016) 'Tobacco treatment TrAining Network in Crete (TiTAN-Crete): protocol for a controlled before-after study.' Tobacco Prevention & Cessation, 2(June). doi: 10.18332/tpc/63823.

Publication #2

Girvalaki C, Papadakis S, Vardavas C, Petridou E, Pipe A, Lionis C. (2017) 'Smoking cessation delivery by general practitioners in Crete, Greece.' Eur J Public Health, 13(November). doi: 10.1093/eurpub/ckx201.

Publication #3

Girvalaki C, Papadakis S, Vardavas C, Petridou E, Pipe A, Tsiligianni I, Lionis C. (2018) 'Training general practitioners in evidence-based tobacco treatment: an evaluation of the Tobacco Treatment Training Network in Crete (TiTAN-Crete) intervention', Health Education & Behavior, 1–10. doi: 10.1177/1090198118775481

Publication #4

Papadakis S, Girvalaki C, Vardavas C, Pipe A, Cole A, Tsiligianni I, Petridou E, Lionis C. (2018) 'Factors associated with rates of tobacco treatment delivery by General Practitioners in Greece: Missed opportunities for prevention?, Tobacco Induced Diseases, 16(May), 21. https://doi.org/10.18332/tid/90822

Extended Greek Summary

Εισαγωγικά στοιχεία

Η χρήση καπνού αποτελεί την κύρια αιτία νοσηρότητας και θνησιμότητας στην Ευρώπη και αποτελεί τον κύριο παράγοντα κινδύνου για καρδιαγγειακές παθήσεις, καρκίνο και άλλες ασθένειες (Mathers and World Health Organization., 2012; European Commission, 2017). Είκοσι έξι τοις εκατό (26.0%) των Ευρωπαίων καπνίζουν σήμερα (European Commission, 2017). Παρόλο που σημειώθηκε μείωση του καπνίσματος στην Ευρώπη τα τελευταία δύο χρόνια, οι χώρες της νότιας Ευρώπης και ιδιαίτερα η Ελλάδα συνεχίζουν να καταγράφουν υψηλά ποσοστά χρήσης καπνού. Η Ελλάδα έχει το υψηλότερο ποσοστό χρήσης καπνού στην Ευρώπη (37.0% του ενήλικου πληθυσμού), ενώ η Σουηδία έχει το χαμηλότερο (7.0%) (European Commission, 2017). Ο αριθμός των τσιγάρων που καπνίζονται ημερησίως είναι σημαντικά μεγαλύτερος στον ελληνικό πληθυσμό (17.8 τσιγάρα/ημέρα) σε σύγκριση με τον ευρωπαϊκό μέσο όρο (14.1 τσιγάρα/ημέρα) (European Commission, 2017). Η Ελλάδα έχει επίσης ένα από τα χαμηλότερα ποσοστά (12.0%) των καπνιστών που αναφέρουν την διενέργεια απόπειρας διακοπής του καπνίσματος κατά το τελευταίο έτος, ενώ μόνο το 1.0% των καπνιστών αναφέρει ότι έλαβε την στήριξη ενός επαγγελματία υγείας για να προχωρήσει στην διακοπή του καπνίσματος (European Commission, 2017). Αξίζει επίσης να σημειωθεί ότι, παρά το τεράστιο βάρος για το σύστημα υγειονομικής περίθαλψης, προγενέστερη έρευνα έδειξε ότι ένα σημαντικό ποσοστό (44.0%) των καπνιστών στην Ελλάδα ενδιαφέρεται να διακόψει το κάπνισμα στο άμεσο μέλλον, πάραυτα ελάχιστοι το προσπαθούν με την ανάλογη στήριξη και βοήθεια από τους επαγγελματίες υγείας (Schoretsaniti *et al.*, 2014).

Ο Παγκόσμιος Οργανισμός Υγείας (WHO) και οι Κατευθυντήριες Οδηγίες από το Ευρωπαϊκό Δίκτυο για το Κάπνισμα και την Πρόληψη της Καπνιστικής συνήθειας (ENSP) (World Health Organization, 2008b; European Commission, 2017) προβάλλουν ως επιτακτική ανάγκη την ενσωμάτωση της θεραπείας εξάρτησης από την νικοτίνη στην καθημερινή κλινική πρακτική στην Πρωτοβάθμια Φροντίδα Υγείας.

Ο ρόλος του Γενικού Ιατρού και συγκεκριμένα η συμβουλή του στην διακοπή του καπνίσματος, φαίνεται να αυξάνει το κίνητρο των καπνιστών να διακόψουν (Fiore *et al.*, 2008; Stead, Bergson and Lancaster, 2008a). Πιο συγκεκριμένα, τα αποτελέσματα μελέτης έδειξαν ότι περισσότεροι από τους μισούς καπνιστές που διέκοψαν το κάπνισμα υποστήριξαν ότι η συμβουλή του γενικού ιατρού επηρέασε σημαντικά την απόφαση τους να το πράξουν.

Μια ανασκόπηση και μετανάλυση από το United States Department of Human Health Service (USDHHS) διερεύνησε την βιβλιογραφία ως προς την αποτελεσματικότητα της συμβουλευτικής αλλά και της συμβουλής του γενικού ιατρού στην διακοπή του καπνίσματος. Ο λόγος πιθανοτήτων (pooled odds ratio) της διακοπής του καπνίσματος που σχετίζεται με την συμβουλή του ιατρού σε σχέση με την περίπτωση όπου δεν υπάρχει συμβουλή υπολογίστηκε 1.3 [95% CI 1.01, 1.6] για σύντομη συμβουλευτική (< 3 λεπτά), 1.6 [95% CI 1.2-2.0] για μικρής διάρκειας συμβουλευτική (3-10 λεπτά) και 2.3 [95% CI 2.0-2.7] για μεγάλης διάρκειας συμβουλευτική (>10 λεπτά). Αυτό αντιστοιχεί σε μια αύξηση στην διακοπή του καπνίσματος κατά περίπου 2.5%, 5% και 11.2% αντίστοιχα σε σύγκριση με την ομάδα ελέγχου (Fiore *et al.*, 2008).

Αξίζει επίσης να σημειωθεί ότι, η θεραπεία διακοπής καπνίσματος θεωρείται "Gold Standard" μεταξύ των παρεμβάσεων προληπτικού χαρακτήρα, από την σκοπιά κόστους-οφέλους (Gaziano, Galea and Reddy, 2007; Kahn *et al.*, 2008).

Το μοντέλο των 5A θεωρείται μοντέλο που βασίζεται στην τεκμηρίωση για την ενσωμάτωση της θεραπείας εξάρτησης από την νικοτίνη σε κλινικά περιβάλλοντα και έχει αποδειχθεί ότι αυξάνει τις προσπάθειες και τα ποσοστά διακοπής. Αποτελείται από τις ακόλουθες θεμελιώδεις στρατηγικές: "Ask", διερεύνηση της καπνιστικής συνήθειας σε όλους τους ασθενείς, "Advise", συμβουλή του ιατρού στους καπνιστές να διακόψουν το κάπνισμα,"Assess" αξιολόγηση της ετοιμότητας διακοπής του καπνίσματος ,"Assist" βοήθεια στην προσπάθεια διακοπής και "Arrange" προγραμματισμός συναντήσεων για την παρακολούθηση της προσπάθειας διακοπής (Fiore *et al.*, 2008; ENSP *et al.*, 2018). Ωστόσο, ο ρυθμός με τον οποίο διενεργούνται αυτές οι θεραπείες για την διακοπή του καπνίσματος παραμένει αρκετά χαμηλός σε επίπεδο πρωτοβάθμιας περίθαλψης στην Ευρώπη (Mcewen and West, 2001; Jiménez-Ruiz *et al.*, 2015; Everatt, Zolubiene and Grassi, 2016).

Η αντιμετώπιση των γνωστών καθημερινών φραγμών για την παροχή θεραπείας διακοπής καπνίσματος (δηλαδή η γνώση, οι στάσεις, οι δεξιότητες και οι χρονικοί περιορισμοί) είναι απαραίτητη για την αύξηση της παροχής θεραπευτικών παρεμβάσεων στην πρωτοβάθμια περίθαλψη (Pipe, Sorensen and Reid, 2009; Stead *et al.*, 2009; Patelarou *et al.*, 2011). Η σημασία της αξιολόγησης και της έρευνας των προγραμμάτων συνεχούς κατάρτισης στον τομέα της ιατρικής εκπαίδευσης για την εξασφάλιση της ποιότητας στα προγράμματα κατάρτισης έχει επίσης αναγνωριστεί και μπορεί να επηρεάσει σημαντικά την επαγγελματική ικανότητα, τη μελλοντική κλινική πρακτική και τα αποτελέσματα των ασθενών (Shumway, Harden and Association for Medical Education in Europe, 2003; Price, 2005).

Αξίζει επίσης να καταγραφεί ότι, το εκπαιδευτικό πρόγραμμα παρέμβασης που εφαρμόστηκε στα πλαίσια της παρούσας διατριβής δημιουργήθηκε και εφαρμόζεται με μεγάλη επιτυχία από το Heart Institute του πανεπιστημίου της Ottawa στον Καναδά. Το «μοντέλο Ottawa για την διακοπή του καπνίσματος» (OMSC) είναι μια πολυπαραγοντική παρέμβαση για την αντιμετώπιση της χρήσης καπνού από τους καπνιστές στην πρωτοβάθμια φροντίδα υγείας. Η αξιολόγηση του προγράμματος OMSC έχει επιδείξει σημαντικές βελτιώσεις στους ρυθμούς με τους οποίους παρέχεται θεραπεία για την διακοπή του καπνίσματος με βάση τεκμηριωμένες πρακτικές στους ασθενείς της πρωτοβάθμια φροντίδα υγείας (Papadakis *et al.*, 2013, 2016).

Στόχος της παρούσας διατριβής ήταν η προσαρμογή του προγράμματος OMSC στην πρωτοβάθμια φροντίδα υγείας στην Ελλάδα και η ανάπτυξη ενός δικτύου εκπαιδευμένων γενικών ιατρών στην Κρήτη, που θα ενσωματώσει την θεραπεία της εξάρτησης από την νικοτίνη στην καθημερινή κλινική πρακτική.

Έως σήμερα τόσο στην χώρα μας όσο και στην Κρήτη δεν έχει εφαρμοστεί ανάλογο πρόγραμμα που θα αποφέρει πολλαπλά οφέλη με σημαντικότερο εκείνο της δυνατότητας παροχής στήριξης για την διακοπή της καπνιστικής συνήθειας σε όποιον πολίτη το επιθυμεί, μέσω της Πρωτοβάθμιας Φροντίδας Υγείας, με την ελπίδα οτι η καινοτομία θα οδηγήσει στο να βρεθεί τρόπος αντιμετώπισης της κυρίας αλλά και αποτρέψιμης αιτίας θανάτου μεταξύ των Ελλήνων πολιτών, που δεν είναι άλλη από την εξάρτηση από την νικοτίνη.

Μεθοδολογία

Ερευνητική Υπόθεση

Ερευνητική υπόθεση της παρούσας διδακτορικής διατριβής αποτελεί το γεγονός οτι η εκπαιδευτική παρέμβαση σε θέματα διακοπής καπνίσματος, όταν εφαρμοστεί σε Γενικούς Ιατρούς της πρωτοβάθμιας φροντίδας υγείας μπορεί να:

Α) Αυξήσει τις γνώσεις, να μεταβάλλει τις στάσεις, τις πεποιθήσεις, τον αντιλαμβανόμενο έλεγχο της συμπεριφοράς, καθώς και τις προθέσεις που σχετίζονται με την ενσωμάτωση της θεραπείας διακοπής καπνίσματος στην καθημερινή κλινική πρακτική, στην ομάδας παρέμβασης.

Β) Μεταβάλλει την συμπεριφορά της ομάδας παρέμβασης αναφορικά με την ενσωμάτωση της θεραπείας διακοπής καπνίσματος στην καθημερινή κλινική πρακτική.

Σκοπός της παρούσας διατριβής ήταν η ανάπτυξη ενός δικτύου καταρτισμένων Γενικών Γιατρών Πρωτοβάθμιας Φροντίδας Υγείας (ΠΦΥ) στην Κρήτη και η διερεύνηση της αποτελεσματικότητας του προγράμματος με κριτήριο την ενσωμάτωση της θεραπείας διακοπής καπνίσματος στην καθημερινή κλινική πρακτική.

Ερευνητικά ερωτήματα

Α) Είναι ικανή μια εκπαιδευτική παρέμβαση, να αυξήσει την γνώση, να αλλάξει τις συμπεριφορές, τις πεποιθήσεις, τον αντιλαμβανόμενο έλεγχο της συμπεριφοράς και τις προθέσεις που σχετίζονται με την ενσωμάτωση της θεραπείας διακοπής καπνίσματος στην καθημερινή κλινική πρακτική από τους γενικούς γιατρούς της ΠΦΥ;

Β) Μπορεί μια εκπαιδευτική παρέμβαση που εφαρμόζεται στους γενικούς γιατρούς της ΠΦΥ και σχετίζεται με την διακοπή του καπνίσματος να αλλάξει τις έως τώρα συμπεριφορές στον τομέα αυτό;

Η παρούσα διδακτορική διατριβή εντάσσεται στο ερευνητικό πρόγραμμα με τίτλο: «TiTAN Crete- Tobacco treatment TrAining Network in Crete», το οποίο έχει σχεδιαστεί, στο πλαίσιο της συνεργασίας της Κλινικής Κοινωνικής και Οικογενειακής Ιατρικής του Πανεπιστημίου Κρήτης με την Ιατρική Σχολή του Πανεπιστημίου της Ottawa και ήταν χρηματοδοτούμενο από πόρους της Global Bridges.

Το ερευνητικό πρόγραμμα είχε λάβει άδεια από την επιτροπή Βιοηθικής ΠΑΓΝΗ με αριθμό πρωτοκόλλου 18078. Αριθμός απόφασης διοικητικού συμβουλίου 366 στις 24/07/2015. Επίσης η εκπαιδευτική παρέμβαση έχει καταχωρηθεί στην διεθνή βάση δεδομένων ISRCTN. (http://www.isrctn.com/ISRCTN10306198?q=titan&filters=&sort=&offset=1&totalResults=3&page=1&pageSize=10&searchType=basic-search)

Είδος μελέτης

Πρόκειται για μια πιλοτική μελέτη παρέμβασης που περιλαμβάνει δύο ομάδες. Την ομάδα όπου πραγματοποιήθηκε η εκπαίδευση και την ομάδα ελέγχου. Η αξιολόγηση πραγματοποιήθηκε έχοντας λάβει τα δεδομένα τόσο πριν όσο και μετά την παρέμβαση για την ομάδα παρέμβασης. Η συλλογή δεδομένων στην ομάδα ελέγχου πραγματοποιήθηκε μόνο μια φορά λόγω περιορισμένου χρόνου της μελέτης και περιορισμένων οικονομικών δυνατοτήτων του προγράμματος. Το πρωτόκολλο που ακολουθήθηκε είναι δημοσιευμένο και επισυνάπτεται στο παράρτημα της παρούσας διατριβής (Girvalaki *et al.*, 2016).

Συμμετέχοντες

Στην ομάδα παρέμβασης δέχτηκαν να συμμετέχουν αρχικά 16 Γενικοί ιατροί από το Νομό Ηρακλείου και στην ομάδα ελέγχου 10 Γενικοί ιατροί από το Κέντρο Υγείας Σπηλίου του Νομού Ρεθύμνου. Μια ιατρός της ομάδας παρέμβασης αποχώρησε πριν την εκπαίδευση, οπότε ο αριθμός των ιατρών της ομάδας παρέμβασης που προχώρησαν στην εκπαίδευση ήταν 15.

Τόσο στην ομάδα παρέμβασης όσο και στην ομάδα ελέγχου απεστάλλει επίσημη πρόσκληση για να συμμετέχουν στην μελέτη. Στην συνέχεια, ακολούθησε τηλεφωνική επικοινωνία για να επιβεβαιωθεί η προθυμία των Γενικών Ιατρών να συμμετέχουν στην μελέτη, όπως και σύντομες συναντήσεις για να συζητηθεί το περιεχόμενο του πρωτοκόλλου, του ενημερωτικού σημειώματος και της φόρμας συγκατάθεσης και να απαντηθούν τυχόν ερωτήματα και απορίες. Όλοι οι συμμετέχοντες υπέγραψαν έντυπο συγκατάθεσης και συμπλήρωσαν ένα σύντομο ερωτηματολόγιο κατά την έναρξη της μελέτης (ομάδα παρέμβασης και ελέγχου). Η διαδικασία αυτή επαναλήφθηκε για την ομάδα παρέμβασης 4 μήνες μετά την εκπαίδευση.

Επίσης, πραγματοποιήθηκε η συλλογή ερωτηματολογίων από τυχαίο δείγμα καπνιστών ανά ιατρό της ομάδας παρέμβασης από το διάστημα Μάιος έως Σεπτέμβριος 2015. Συνολικά ελέγχθηκαν 1189 ασθενείς ενώ οι καπνιστές ήταν 524. Ο επιπολασμός του καπνίσματος υπολογίστηκε στο 38.2%. Παράλληλα με την εκπαίδευση της ομάδας παρέμβασης, είχε ξεκινήσει η συλλογή ερωτηματολογίων των ασθενών της ομάδας ελέγχου η οποία και ολοκληρώθηκε τον Ιούνιο του 2016. Στην ομάδα ελέγχου συνολικά ερωτήθηκαν 1072 ασθενείς, από τους οποίους 317 ήταν καπνιστές (29.6%). Στην δεύτερη φάση συλλογής ερωτηματολογίων ασθενών στην ομάδα παρέμβασης, η οποία πραγματοποιήθηκε 4 μήνες μετά το τέλος της παρέμβασης, ελέγχθηκαν 1270 ασθενείς ενώ 460 ήταν καπνιστές (36.2%).

Τα κριτήρια για την εισαγωγή των ασθενών στην μελέτη ήταν:

- Να είναι καπνιστές (>1τσιγάρα ημερησίως)
- Να είναι >18 ετών
- Να μην αποτελούν επείγοντα περιστατικά κατά την ημέρα καταγραφής των στοιχείων από τον υπεύθυνο της έρευνας
- Να είναι σε θέση να διαβάσουν και να κατανοήσουν την Ελληνική γλώσσα
- Να έχουν πνευματική διαύγεια ώστε να μπορέσουν να παρέχουν ενυπόγραφη συγκατάθεση για την συμμετοχή τους στην μελέτη

Σαν κριτήριο για την εισαγωγή των ιατρών στην μελέτη τέθηκε η προϋπόθεση να μην έχουν λάβει κατά το παρελθόν εντατική εκπαίδευση σε θέματα διακοπής καπνίσματος.

Εκπαιδευτικό πρόγραμμα - Υλικό

Στις 23 Σεπτεμβρίου 2015 διεξήχθη ολοήμερη εκπαιδευτική παρέμβαση για την διακοπή του καπνίσματος στους Γενικούς Ιατρούς της ομάδας παρέμβασης στον χώρο της Ιατρικής Σχολής του Πανεπιστημίου Κρήτης. Στην εκπαίδευση των ιατρών συμμετείχαν 6 διακεκριμένοι επιστήμονες από την Ελλάδα και το εξωτερικό ενώ το περιεχόμενο αφορούσε στοιχεία για το κάπνισμα και την διακοπή από την Ελλάδα και το εξωτερικό, την παθοφυσιολογία του εθισμού, τις τεχνικές συμβουλευτικής για την διακοπή του καπνίσματος ανάλογα με το στάδιο ετοιμότητας διακοπής, την φαρμακοθεραπεία, τις ειδικές ομάδες πληθυσμού και γενικότερες πολιτικές. Στις 3 Νοεμβρίου

2015, πραγματοποιήθηκε μια δεύτερη εκπαιδευτική παρέμβαση, μικρότερης έκτασης, που ήταν επικεντρωμένη στις τεχνικές συμβουλευτικής ενώ στις 11 Ιανουαρίου 2015 πραγματοποιήθηκε η τρίτη και τελευταία εκπαιδευτική παρέμβαση. Το περιεχόμενο αφορούσε στην γνωστική συμπεριφορική θεραπεία (cognitive behavioral therapy), στην τεχνική της συνέντευξης κινητοποίησης (motivational interviewing) καθώς και στον ρόλο των ηλεκτρονικών τσιγάρων στην διακοπή του καπνίσματος με βάση την υπάρχουσα βιβλιογραφία.

Την εκπαίδευση ολοκλήρωσαν 14 ιατροί (1 αποχώρησε στην αρχική φάση της μελέτης και 1 αποχώρησε λόγω μετακίνησης σε άλλη πόλη της Ελλάδας μετά την εκπαίδευση). Τα δεδομένα αυτά αφαιρέθηκαν από τις αναλύσεις των αποτελεσμάτων.

Αξίζει επίσης να σημειωθεί ότι πριν και μετά την εκπαιδευτική ημερίδα, έγινε αξιολόγηση του επιπέδου των γνώσεων των ιατρών με την χρήση ερωτηματολογίου που είχε διαμορφωθεί για τον σκοπό αυτό και περιείχε ερωτήσεις που αφορούσαν στο περιεχόμενο της εκπαίδευσης προκειμένου να αξιολογηθούν οι γνώσεις που αποκτήθηκαν.

Επιπλέον, αναπτύχθηκε σημαντικό υλικό όπως βιβλιαράκι αυτοβοήθειας των ασθενών για την διακοπή καπνίσματος, συμβουλευτικές φόρμες, φόρμα καταγραφής καπνιστικής συνήθειας, βιντεοσκοπημένο υλικό κ.α. Όλα τα παραπάνω υπάρχουν διαθέσιμα στην ιστοσελίδα του προγράμματος: www.titan.uoc.gr.

Αξιολόγηση των αποτελεσμάτων μετά την εκπαίδευση

Η αποτελεσματικότητα της παρέμβασης αξιολογήθηκε μέσα από:

- Την ικανοποίηση των συμμετεχόντων στην παρέμβαση (1 ερώτηση)

- Την μεταβολή των γνώσεων (13 ερωτήσεις), στάσεων (4 ερωτήσεις), πεποιθήσεων (2 ερωτήσεις), προθέσεων (1 ερώτηση) και αντιλαμβανόμενου ελέγχου συμπεριφοράς (1 ερώτηση) που σχετίζονται με την εφαρμογή της θεραπείας που αφορά στο κάπνισμα

- Την μεταβολή της συμπεριφοράς της ομάδας παρέμβασης που σχετίζεται με την ενσωμάτωση της θεραπείας για την διακοπή του καπνίσματος (εφαρμογή των 5As).

Τα κύρια μέτρα έκβασης ήταν η εφαρμογή των 4Α (ρωτήστε, συμβουλευτείτε, βοηθήστε, προγραμματίστε επαναληπτική συνάντηση) από τους Γενικούς Ιατρούς. Δεν διερευνήσαμε τη στρατηγική "αξιολόγηση του βαθμού εθισμού - Assess" για να συντομεύσουμε την συνολική διάρκεια της έρευνας και θεωρήσαμε ότι είναι λιγότερο σημαντικό από τα υπόλοιπα κύρια μέτρα έκβασης ως προς τα επιθυμητά αποτελέσματα της παρέμβασης. Το ερωτηματολόγιο που χρησιμοποιήθηκε για τον σκοπό αυτό ζητούσε από τους καπνιστές να αξιολογήσουν την απόδοση του Γενικού Ιατρού, την ημέρα της επίσκεψης για το εάν τους ρώτησε εάν καπνίζουν ("ask"), τους συμβούλευσε να διακόψουν το κάπνισμα ("advise– quit smoking"), τους συμβούλευσε για τους κινδύνους που προέρχονται από το κάπνισμα ("advise – health hazards"), προσέφερε την βοήθεια του για να διακόψουν το κάπνισμα ("assist") και προγραμμάτισε επόμενο ραντεβού για ενισχύσει και να υποστηρίξει την προσπάθεια διακοπής ("arrange"). Για την στρατηγική της παροχής βοήθειας από τον ιατρό, οι ασθενείς επίσης ερωτήθηκαν αν ο Γενικός Ιατρός τους παρείχε υλικό αυτοβοήθειας, όρισε ημερομηνία διακοπής και συζήτησε μαζί τους την διαθέσιμη φαρμακοθεραπεία.

Ισχύς και μέγεθος του δείγματος

Ο υπολογισμός του δείγματος υπολογίστηκε με βάση την μεταβλητή "Advise". Σύμφωνα με τις εκτιμήσεις από άλλες μελέτες, ο συντελεστής συσχέτισης (ICC) καθορίστηκε στο 0.01. Σύμφωνα με τα αντίστοιχα ποσοστά που προκύπτουν από το Ottawa Heart Institute's primary care network του Πανεπιστημίου της Οτάβα, έγινε η παραδοχή ότι η επίδραση (effect) υπολογίζεται στο 15.0%, (Papadakis *et al.*, 2013). Επομένως το ποσοστό του "Advise" υπολογίστηκε στο 45.0% στην ομάδας ελέγχου και το 60.0% στην ομάδα παρέμβασης. Το ποσοστό της ομάδας ελέγχου υπολογίστηκε με βάση προηγούμενες στρατηγικές δειγματοληψίας στην Πρωτοβάθμια Φροντίδα Υγείας στην Ελλάδα (Kotsoni *et al.*, 2008).

Ο υπολογισμός του δείγματος για τα 25 ιατρεία (15 ιατρεία παρέμβασης και 10 ιατρεία ελέγχου) ανέδειξε 28 ασθενής ανά ιατρό. Όλοι οι υπολογισμοί βασίστηκαν σε δίπλευρο έλεγχο (two-sided test), με ισχύ 90.0% και επίπεδο εμπιστοσύνης 0.05. Με σκοπό να προβλέψουμε την πιθανή απώλεια συμμετεχόντων ιατρών κατά την επανεξέταση, αυξήσαμε τον αριθμό των συμμετεχόντων ασθενών. Συνολικά, ~36 ασθενείς εντάχθηκαν στην μελέτη από κάθε ιατρό.

Οι δειγματοληψία στην ομάδα ελέγχου πραγματοποιήθηκε μια μόνο φορά κατά την έναρξη της μελέτης σε αντίθεση με την ομάδα παρέμβασης όπου πραγματοποιήθηκε δειγματοληψία πριν και μετά την εκπαιδευτική παρέμβαση.

Στατιστική ανάλυση

Τα ιατρεία, οι γενικοί ιατροί και τα χαρακτηριστικά των ασθενών συγκρίθηκαν μεταξύ των χρονικών σημείων (πριν και μετά την παρέμβαση) και μεταξύ της ομάδας παρέμβασης και της ομάδας ελέγχου, προκειμένου να αξιολογηθεί η αποτελεσματικότητα του προγράμματος κατάρτισης.

Ελέγξαμε τη διακύμανση σε επίπεδο Γενικών Ιατρων κατά τον υπολογισμό των τιμών στατιστικής σημαντικότητας. Χρησιμοποιήθηκε πολυπαραγοντική ανάλυση για να εξετάσουμε την επίδραση της παρέμβασης. Εξετάσαμε τις αλλαγές σε επίπεδο ενδιαφέροντος πριν και μετά την παρέμβαση, στην ομάδα παρέμβασης αποκλειστικά.

Σε μια δεύτερη ανάλυση εξετάσαμε τις διαφορές μεταξύ της ομάδας παρέμβασης και ελέγχου. Δεδομένων των διαφορών που παρατηρήθηκαν μεταξύ των ομάδων παρέμβασης και ελέγχου πριν από την έκθεση στην παρέμβαση, παρατηρήθηκαν διαφορές ως προς τις μεταβλητές "assist" and "arrange", έγινε η ανάλογη προσαρμογή στην ανάλυση. Wald tests χρησιμοποιήθηκαν για την εξαγωγή των p-values και των λόγων πιθανοφάνειας (OR, 95% CI) ώστε να συνοψίσει την συνολική επίδραση. Τα δεδομένα αναλύθηκαν χρησιμοποιώντας SPSS και STATA.

Αποτελέσματα

Χαρακτηριστικά Γενικών Ιατρών και ασθενών

Οι Γενικοί Ιατροί στην ομάδα παρέμβασης και ελέγχου είχαν παρόμοια δημογραφικά χαρακτηριστικά, με την εξαίρεση το γεγονός ότι περισσότεροι γενικοί ιατροί στην ομάδα ελέγχου βρίσκονταν σε αγροτικές περιοχές. Οι Γενικοί Ιατροί που συμμετείχαν ήταν σχετικά νέοι. Το 100.0% από την ομάδα παρέμβασης και το 90.0% της ομάδας ελέγχου ήταν κάτω των 50 ετών. Περίπου το ένα τρίτο των ιατρών ανέφερε ότι συμμετείχε στο παρελθόν σε εκπαίδευση διακοπής του καπνίσματος, περιορισμένης όμως έκτασης. Το 20.0% των ιατρών της ομάδας ελέγχου και το 33.0% στην ομάδα παρέμβασης ανέφεραν προσωπική χρήση καπνού.

Όσον αφορά στα δημογραφικά χαρακτηριστικά των καπνιστών, δεν παρατηρήθηκαν σημαντικές διαφορές, παρά μόνο στις μεταβλητές του αριθμού τσιγάρων ανά ημέρα και του χρόνου για το πρώτο τσιγάρο της ημέρας μεταξύ της ομάδας ελέγχου και παρέμβασης. Ελέγξαμε για αυτές τις διαφορές στο τελικό μοντέλο.

Ικανοποίηση, μεταβολή της γνώσης, της αυτο-αποτελεσματικότητας, των πεποιθήσεων, της στάσης και της πρόθεσης των Γενικών Ιατρών

Σημειώθηκαν υψηλά ποσοστά ικανοποίησης από την εκπαιδευτική παρέμβαση, με την πλειοψηφία (80.0%) των γενικών ιατρών να δηλώνει ότι η εκπαιδευτική παρέμβαση εκπλήρωσε τις προσδοκίες τους "σε μεγάλο βαθμό". Σημαντικές αλλαγές καταγράφηκαν σε έξι από τις δεκατρείς ερωτήσεις γνώσεων που αξιολογήθηκαν πριν και μετά την παρέμβαση. Ευνοϊκές αλλαγές στην μεταβολή της στάσης των ιατρών απέναντι στην εφαρμογή της θεραπείας για την διακοπή της καπνιστικής συνήθειας στην ομάδα παρέμβασης επίσης καταγράφηκαν, ωστόσο δεν ήταν στατιστικά σημαντικές.

Μία μεγάλη και στατιστικά σημαντική αύξηση της αυτό-αποτελεσματικότητας – αυτοπεποίθησης των ιατρών της ομάδας παρέμβασης τεκμηριώνεται μετά την παρέμβαση (14.3% έναντι 64.3%, p = 0.034) όσον αφορά στην εφαρμογή της θεραπείας για την διακοπή της καπνιστικής συνήθειας . Έχει επίσης τεκμηριωθεί μεγάλη αύξηση στην πρόθεση να βοηθήσουν τους ασθενείς στην διακοπή της καπνιστικής, αλλά δεν ήταν στατιστικά σημαντική (42.9% έναντι 71.4%, p = 0.183).

Μεταβολή της εφαρμογής των 4As στην θεραπεία διακοπής καπνίσματος

Σύγκριση πριν και μετά την παρέμβαση

Η μεταβολή της εφαρμογής των 4As στην θεραπεία διακοπής καπνίσματος αυξήθηκε σημαντικά μετά την εκπαιδευτική παρέμβαση. Πιο συγκεκριμένα, αποδείχτηκε ότι η παρέμβαση κατάφερε να βελτιώσει την έως τώρα πρακτική των ιατρών μεταβάλλοντας σημαντικά τα ποσοστά που διερευνούσαν την καπνιστική συνήθεια στους ασθενείς τους AOR 'ask' 3.66 (95%CI: 2.61, 5.14), τους συμβούλευαν να διακόψουν το κάπνισμα AOR 'advise' 4.21 (95%CI 3.02, 5.87), τους προσέφεραν την βοήθεια τους για να διακόψουν AOR 'assist' 13.10 (95%CI: 8.83, 19.42) και

τέλος προγραμμάτιζαν επαναληπτικά ραντεβού για να αξιολογήσουν την προσπάθεια διακοπής του καπνίσματος των ασθενών τους AOR 'arrange' 4.75 (95%CI 2.67, 8.45).

Σύγκριση μεταξύ ομάδας παρέμβασης και ομάδας ελέγχου

Καταγράφηκαν διαφορές κατά την αρχική φάση της έρευνας – πριν την παρέμβαση, μεταξύ των δύο ομάδων όσον αφορά στην παροχή βοήθειας για την διακοπή (Assist) και τον προγραμματισμό επαναληπτικού ραντεβού (Arrange). Έγινε προσαρμογή στην ανάλυση για αυτές τις διαφορές. Από την ανάλυση προέκυψαν στατιστικά σημαντικές διαφορές μεταξύ της ομάδας παρέμβασης και της ομάδας ελέγχου και στα 4 As. Πιο συγκεκριμένα: διερευνούσαν την καπνιστική συνήθεια στους ασθενείς τους AOR 'ask' 4.12 (95%CI 1.31, 13.01);, τους συμβούλευαν να διακόψουν το κάπνισμα AOR 'advise' 5.03 (95%CI 1.87, 13.56), τους προσέφεραν την βοήθεια τους για να διακόψουν AOR 'assist' 18.24 (95%CI 18.24, 113.25)και τέλος προγραμμάτιζαν επαναληπτικά ραντεβού για να αξιολογήσουν την προσπάθεια διακοπής του καπνίσματος των ασθενών τους AOR 'arrange' 15.07 (95%CI 3.49, 65.12).

Συζήτηση

Η αξιολόγηση της παρέμβασης τεκμηρίωσε σημαντικές αυξήσεις στις γνώσεις, την αυτο-αποτελεσματικότητα και τα ποσοστά με τα οποία οι Γενικοί Ιατροί εφάρμοσαν τις τεκμηριωμένες πρακτικές για την θεραπεία εξάρτησης από την νικοτίνη. Η παρούσα διδακτορική διατριβή καταδεικνύει ότι ένα εκπαιδευτικό πρόγραμμα και εργαλεία που βασίζονται σε τεκμηριωμένα στοιχεία και αρχές βασισμένες στη θεωρία της προσχεδιασμένης συμπεριφοράς, ήταν αποτελεσματικές στην αύξηση των ρυθμών με τους οποίους οι ιατροί παρέχουν θεραπεία για την διακοπή του καπνίσματος. Το εκπαιδευτικό πρόγραμμα ήταν προσαρμοσμένο στις πραγματικές συνθήκες της Πρωτοβάθμιας Φροντίδας Υγείας στην Ελλάδα, παρέχοντας ολοκληρωμένες γνώσεις και χρησιμοποιώντας τεχνικές μάθησης όπως οι προσεγγίσεις ρόλων και μελέτες περιπτώσεων, οι οποίες αναπτύσσουν επιτυχώς δεξιότητες στην τεκμηριωμένη θεραπεία για την διακοπή του καπνίσματος.

Κατά την έναρξη της μελέτης, καταγράφηκαν πολύ χαμηλά ποσοστά γνώσεων και αισθήματος αυτο-αποτελεσματικότητας - αυτοπεποίθησης των γενικών ιατρών, υποδεικνύοντας την ανάγκη

επίσημων προγραμμάτων κατάρτισης για την ενίσχυση των γνώσεων και δεξιοτήτων των γενικών ιατρών. Οι γενικοί ιατροί της ομάδας παρέμβασης ανέφεραν υψηλά ποσοστά ικανοποίησης από το εκπαιδευτικό πρόγραμμα και τα εργαλεία που σχεδιάστηκαν για τον σκοπό αυτό. Ωστόσο, δεν ανιχνεύθηκαν οι αναμενόμενες αλλαγές σε όλα τα πεδία που αφορούν στις στάσεις και συμπεριφορές και αυτός είναι ένας τομέας που απαιτεί περαιτέρω βελτίωση και διερεύνηση.

Είναι σημαντικό ότι ακόμα και μετά την εκπαίδευση καταγράψαμε τις ανησυχίες της ομάδας παρέμβασης σχετικά με την αποτελεσματικότητα και την ασφάλεια της υπάρχουσας φαρμακοθεραπείας, γεγονός που δικαιολογεί περαιτέρω διερεύνηση, δεδομένου του ότι είναι γνωστή και αποδεδειγμένη η ασφάλεια και αποτελεσματικότητας αυτών των φαρμάκων.

Σύγκριση με την υπάρχουσα βιβλιογραφία

Τα ευρήματα της παρούσας διδακτορικής διατριβής είναι συνεπή με προηγούμενες αξιολογήσεις του μοντέλου της Ottawa για την διακοπή του καπνίσματος στην Πρωτοβάθμια Φροντίδα Υγείας, όπου είχαν καταγραφεί επίσης σημαντικές αυξήσεις στην εφαρμογή της θεραπείας για την εξάρτηση από την νικοτίνη με μέση αύξηση 16.0-23.0% στην εφαρμογή των 4Α (Papadakis *et al.*, 2016). Η παρούσα μελέτη τεκμηριώνει μεγαλύτερες αυξήσεις στην εφαρμογή των 4Α από εκείνες που παρατηρήθηκαν στους Γενικούς Ιατρούς του Καναδά, γεγονός που μπορεί να οφείλεται στα χαμηλά ποσοστά εφαρμογής τους κατά την έναρξη της μελέτης στην Ελλάδα.

Και άλλες πρόσφατες μελέτες έχουν κάνει αναφορά στην αξία των καλοσχεδιασμένων εκπαιδευτικών προγραμμάτων στο να επηρεάζουν την αποτελεσματική εφαρμογή της θεραπείας για την διακοπή του καπνίσματος στην Πρωτοβάθμια Φροντίδα Υγείας στην Ευρώπη (Olano-Espinosa *et al.*, 2013; Verbiest *et al.*, 2014).

Μια τυχαιοποιημένη κλινική δοκιμή από τους Verbiest et al., (2014) διαπίστωσε ότι μια πρακτική εκπαίδευση μιας ώρας σε Γενικούς Ιατρούς αύξησε σημαντικά τη συχνότητα με την οποία εκείνοι διερευνούσαν την καπνιστική συνήθεια των ασθενών και τους συμβούλευαν να διακόψουν (Verbiest *et al.*, 2014).

Προηγούμενες έρευνες έχουν δείξει ότι οι υπενθυμίσεις σε πραγματικό χρόνο και οι προτροπές είναι αποτελεσματικά μέτρα για τον επηρεασμό των επιπέδων εφαρμογής της θεραπείας διακοπής

του καπνίσματος από τους γενικούς ιατρούς (Papadakis *et al.*, 2010; Boyle, Solberg and Fiore, 2011). Στην παρούσα διατριβή, προσαρμόσαμε αυτά τα εργαλεία στο τοπικό περιβάλλον πρωτοβάθμιας περίθαλψης. Οι στρατηγικές που χρησιμοποιήθηκαν ήταν σχετικά χαμηλού κόστους και τα αποτελέσματα θα μπορούσαν να ενισχυθούν περαιτέρω με την προσθήκη κι άλλων στοιχείων.

Δυνατά και αδύναμα σημεία της μελέτης

Τα αποτελέσματα της παρούσας διδακτορικής διατριβής είναι τα πρώτα δεδομένα υψηλής ποιότητας για την αξιολόγηση των γνώσεων, των στάσεων και των ποσοστών εφαρμογής της θεραπείας για την διακοπή του καπνίσματος στην πρωτοβάθμια φροντίδα υγείας στην Ελλάδα. Η μελέτη μας αξιολόγησε την εφαρμογή της θεραπείας για την διακοπή του καπνίσματος από δεδομένα που συλλεχθεί από τους ασθενείς, γεγονός που είναι πολύ σημαντικό γιατί όπως προκύπτει η αξιολόγηση της εφαρμογής της θεραπείας για την διακοπή του καπνίσματος από τους ασθενείς, είναι ακριβέστερη από ότι αν η αναφορά γίνεται από τους ίδιους τους γενικούς ιατρούς (Pbert *et al.*, 1999). Η μελέτη μας ήταν επιτυχής στην επίτευξη μιας πολύ υψηλής συμμετοχής τόσο από τους κλινικούς ιατρούς όσο και από τους καπνιστές, πράγμα που το αποδίδουμε στον υψηλό σεβασμό που δίνεται στην έρευνα σε επίπεδο πανεπιστήμιου στην Ελλάδα.

Ένας περιορισμός της μελέτης μας ήταν η μη τυχαιοποίηση του δείγματος των Γενικών ιατρών. Ωστόσο, η χρήση της ομάδας ελέγχου και οι μετρήσεις πριν και μετά την παρέμβαση, βοηθούν στην ελαχιστοποίηση των πιθανών συσχετικών παραγόντων που μπορεί να έχουν οδηγήσει στις παρατηρούμενες αλλαγές. Πραγματοποιήσαμε μέτρηση στην ομάδα ελέγχου σε ένα μόνο χρονικό σημείο καθώς θεωρήθηκε εύλογο ότι σε πολύ σύντομο χρονικό διάστημα (2-4 μήνες) δεν θα αναμένονταν αλλαγές στην ομάδα αυτή. Δεν υπήρξαν άλλοι παράγοντες, εξ όσων γνωρίζουμε, οι οποίοι μπορεί να έχουν επηρεάσει τα ποσοστά εφαρμογής της θεραπείας για την διακοπή του καπνίσματος πέραν του προγράμματος παρέμβασης. Οι ομάδες ελέγχου και παρέμβασης κατέγραψαν διαφορές ως προς τα αρχικά ποσοστά παροχής βοήθειας για την διακοπή "assist" και του προγραμματισμού επόμενου ραντεβού "arrange", υποδεικνύοντας ότι οι ομάδες μας μπορεί να μην ήταν 100% συγκρίσιμες κατά την έναρξη της μελέτης. Όμως ελέγξαμε για αυτή την ασυμφωνία στην ανάλυση μας. Ο εθελοντικός χαρακτήρας της συμμετοχής στη μελέτη μπορεί να

σημαίνει ότι οι συμμετέχοντες ήταν περισσότερο παρακινημένοι από τον γενικό πληθυσμό των γενικών ιατρών. Τέλος, ενώ οι γενικοί ιατροί δεν είχαν πρόσβαση στις λεπτομέρειες αξιολόγησης του ερωτηματολογίου των ασθενών, είναι πιθανό να κατέβαλαν παραπάνω προσπάθεια κατά τη διάρκεια της περιόδου συλλογής δεδομένων αλλά δεδομένων των σχετικά χαμηλών ποσοστών των 4Α στην αρχική φάση πριν την παρέμβαση, δεν είναι πολύ πιθανό να συνέβη κάτι τέτοιο.

Συμπερασματικά

Η παρέμβαση που διενεργήθηκε στα πλαίσια της παρούσας διδακτορικής διατριβής, βασισμένη σε τεκμηριωμένες τεχνικές για την διακοπή του καπνίσματος, συνδέθηκε με σημαντικές αυξήσεις των γνώσεων, των στάσεων και της εφαρμογής της θεραπείας για την διακοπή του καπνίσματος (4As). Η μελλοντική έρευνα θα πρέπει να εξετάσει μεθόδους για την υποστήριξη της ευρύτερης διάδοσης καλά σχεδιασμένων παρεμβάσεων στην πρωτοβάθμια φροντίδα υγείας και στρατηγικών για παρεμβάσεις με καπνιστές που δεν είναι έτοιμοι να διακόψουν το κάπνισμα.

Λέξεις κλειδιά: κάπνισμα, γενικοί ιατροί, εκπαίδευση, Πρωτοβάθμια Φροντίδα Υγείας, Ελλάδα

Abstract

Aim: This doctoral dissertation aimed to evaluate the efficacy of a tobacco treatment training intervention among General Practitioners (GPs) working in primary health care in Crete, Greece. The study objectives were: (a) to determine whether the tobacco treatment training intervention when delivered among GPs can increase GPs' knowledge, attitudes, beliefs, perceived behavioral control, and intentions related to the delivery of tobacco treatment, and (b) whether the tobacco treatment training intervention when delivered among GPs can change GPs' behaviors related to the delivery of tobacco treatment interventions (4As delivery).

Study population & methods: A quasi-experimental pilot study with pre-post evaluation was conducted in Crete, Greece (2015-2016). GPs (n = 24) intervention and control group and a cross-sectional sample of their patients (n = 841) were surveyed before the implementation of the intervention. GPs in the intervention group received training, practice, and patient tools to support the integration of the 4As treatment into clinical routines. Intervention group GPs (n = 14) and a second cross-sectional sample of patients (n = 460) were surveyed 4 months following the intervention to assess changes in outcomes of interest. Multilevel modeling was used to analyze data.

Results: Among GPs exposed to the intervention, significant increases in 6 of the 13 domains of knowledge, self-efficacy (14.3% vs. 64.3%; p=0.034) and rates of 4As delivery were documented between the pre-and post-assessment and compared to the control group. Specifically, the adjusted odds ratios (AOR) and 95% confidence intervals (CI) for 4As delivery between the intervention and control groups were: AOR 'ask' 3.66 (95%CI 2.61, 5.14; p<0.001); AOR 'advice' 4.44 (95%CI 3.18, 6.21; p<0.001); AOR 'assist' 13.71 (95%CI 9.30, 20.19; p<0.001) and AOR 'arrange' 4.75 (95%CI 2.67, 8.45; p<0.001).

Conclusions: This is the first study to evaluate a multi-component tobacco treatment intervention in primary health care in Crete, Greece. The study findings demonstrate that the tobacco treatment training intervention in primary care settings was associated with significant improvements in the rates at which GPs deliver evidence-based tobacco treatment into their daily clinical practice.

Future research should examine methods for supporting broader dissemination of well-designed training interventions in general practice in Greece and other European countries.

Chapter 1: Introduction to the problem

…tobacco is the only legally available consumer product which kills people when it is used entirely as intended.

The Oxford Medical Companion (1994)

1.1 The burden of smoking in Europe

Smoking is the main preventable cause of morbidity and mortality from lung cancer, chronic obstructive pulmonary disease (COPD) and coronary artery disease, and it remains the most important health hazard in European Union (EU) (Mathers and World Health Organization., 2012; European Commission, 2017).

Tobacco use remains the largest avoidable health risk in the EU, responsible for 700,000 deaths each year. Almost 50.0% of smokers die prematurely, resulting in the loss of an average of 14 years of life (European Commission, 2017). Although there has been a decline in smoking prevalence in Europe, tobacco remains a huge problem, with at least one in four adults across Europe smoking and the rate of tobacco use in some countries is almost as high as 40% (European Commission, 2017).

The European Commission's Special Eurobarometer report for 2017 presents the most recent data regarding smoking behavior of the European population. The overall prevalence of smoking in the EU remains stable since 2014 (26.0%) while the proportion of the former smokers is estimated to be 20.0%. This is the highest rate of tobacco use among all the WHO regions while an increase in consumption in the age group 15-24 is observed since 2014 (from 24% to 29%) while men (30.0%) are more likely to smoke than women (22.0%) (European Commission, 2017). Important discrepancies in tobacco prevalence are recorded across the EU countries with persistently higher rates of smoking in Southern Europe. The highest rates of smoking are recorded in Greece (37.0%), Bulgaria (36.0%), France (36.0%) and Croatia (35.0%) while the countries with the lowest rates of smoking are Sweden (7.0%) and United Kingdom (17.0 %) (European Commission, 2017). The average daily cigarette consumption in the EU is 14.1 cigarettes a day, down from an average of 14.7 in 2014. It should be noted that more than half of the smokers (52.0%) in Europe started smoking before the age of 18 years and 76.0% of the smokers continued to smoke for at least 10 years (European Commission, 2017).

Most of the Europeans decide to quit smoking in middle age, either between the ages of 25 and 39 (38.0%) or between the ages of 40 and 54 (30.0%). The 52.0% of the current smokers have attempted to quit smoking, with people in Northern Europe more likely to try quitting than

Southern Europeans. Finally, most of the Europeans (75.0%) who have tried or managed to stop did not use any aids (European Commission, 2017).

It is important to note that, tobacco use imposes a huge economic burden on the European health care systems, with the direct healthcare costs alone estimated to be 100 billion Euros (European Commission, 2012; Tsalapati *et al.*, 2014).

1.2 The burden of smoking in Greece

According to the latest European Commission's Special Eurobarometer, Greece has the highest rate of tobacco use among members of the European Union, estimated to 37.0% of the adult population. The number of cigarettes smoked per day is also significantly higher among Greeks (17.8 cigarettes/day) compared to the European average (14.1 cigarettes/day). Greece also has one of the lowest percentages (12.0%) of smokers who report making a quit attempt in the last year (European Commission, 2017).

In 2011, smoking accounted for to account for a substantial fraction of disease morbidity, resulting in 199,028 annual hospital admissions (8.9% of the national total) with attributable hospital treatment costs calculated at slightly more than €400 million annually, representing 7.7% of the total budget available for public hospitals in Greece (Tsalapati *et al.*, 2014). Adjustments for salaries lead to an overall cost of smoking of more than €500 million annually. These results indicate the significant impact of smoking on both the Greek economy and the nation's health status.

The most common conditions of smoking-related hospitalizations were ischaemic heart disease (~51,232 admissions), other circulatory disease (~26,400 admissions), pulmonary-related outcomes in the form of pneumonia and influenza (24,599 admissions), bronchitis and emphysema (21,148 admissions) and lung cancer (19,645 admissions) (Tsalapati *et al.*, 2014).

Notably though, despite the enormous burden to the healthcare system mainly due to the fiscal situation, the country has undergone during the past years, (Kentikelenis et al., 2011; Kentikelenis and Papanicolas, 2012), research has indicated that a significant percentage (44.0%) of tobacco users in Greece are interested in quitting in the immediate future (Schoretsaniti *et al.*, 2014),

despite the fact that from those attempting to quit only 1.0% reported receiving quitting support from a health professional in Greece (European Commission, 2017). Hence, there has never been a more important time for international collaboration and innovation to address the leading preventable cause of death in Greece.

1.3 The importance of Tobacco Treatment Delivery and the existing Guidelines

The World Health Organization and the European Network for Smoking and Tobacco Prevention (ENSP) Tobacco Treatment Guidelines have called for the integration of tobacco dependence treatment into daily clinical practice in primary health care (World Health Organization, 2008; ENSP *et al.*, 2017)

WHO recognizes tobacco dependence as a disorder (World Health Organization, 2015) that can benefit from treatment. Tobacco dependence treatment is very beneficial, and cessation interventions are '*extremely cost-effective when compared with other healthcare system interventions*'. The Article 14 of Framework Convention on Tobacco Control (FCTC) calls on its parties to '*facilitate accessibility and affordability for treatment of tobacco dependence*'(World Health Organization, 2015). The 2014 FCTC implementation report, underlines that the implementation of services to support tobacco treatment as presented in Article 14 can and should be significantly improved (World Health Organization, 2014). It is a common belief that the time has come to take more urgent steps in order to protect the health and the future of the Europeans.

In this context: Article 14 of the WHO FCTC states that:

"Each Party shall develop and disseminate appropriate, comprehensive and integrated guidelines based on scientific evidence and best practices, taking into account national circumstances and priorities, and shall take effective measures to promote cessation of

Tobacco use and adequate treatment for tobacco dependence".

The guidelines for implementation of Article 14:

i. Encourage Parties to strengthen or create a sustainable infrastructure which motivates attempts to quit, ensures wide access to support for tobacco users who wish to quit, and provides sustainable resources to ensure that such support is available;

ii. Identify the key, effective measures needed to promote tobacco cessation and incorporate tobacco dependence treatment into national tobacco control programmes and health-care systems;

iii. Urge Parties to share experiences and collaborate in order to facilitate the development or strengthening of support for tobacco cessation and tobacco dependence treatment.

According to these aforementioned guidelines, effort should be focused on developing the infrastructure to support tobacco cessation and treatment of tobacco dependence among FCTC party members, with the FCTC recommending that *"Parties should implement the actions listed below in order to strengthen or create the infrastructure needed to promote cessation of tobacco use effectively and provide adequate treatment for tobacco dependence, taking into account national circumstances and priorities."*

These action steps can be summarized as follows

1. Conduct a national situation analysis

2. Create or strengthen national coordination

3. Develop and disseminate comprehensive guidelines

4. Address tobacco use by health-care workers and others involved in tobacco cessation

5. Develop training capacity

6. Use existing systems and resources to ensure the greatest possible access to services

7. Make the recording of tobacco use in medical notes mandatory

8. Encourage collaborative working

9. Establish a sustainable source of funding for cessation help (World Health Organization, 2014)

The 2017 ENSP European Guidelines for Treating Tobacco Dependence are also oriented to support the WHO FCTC. In accordance with FCTC Article 14, these European Guidelines for Treating Tobacco Dependence have been developed and are freely provided to health care professionals and the public.

The ENSP European Guidelines for Treating Tobacco Dependence are structured in a way that will equip health care professionals with the necessary skills to combat this fatal addiction and

provide them with a wide range of vital tools in order to help them improve their smoking cessation strategies. The guidelines consolidate evidence and make recommendations for effective smoking interventions to improve health outcomes and include more than 80 evidence-based recommendations to guide clinical tobacco dependence treatment. One of these recommendations is that all health care professionals working in all practice settings including primary care, specialty care and hospitals should receive training in evidence smoking cessation and feel comfortable intervening with their patients who smoke (ENSP *et al.*, 2018).

1.4 The role of General Practitioners in disease prevention and tobacco treatment delivery

"*Disease prevention, health promotion, providing cure, care, or palliation and promoting patient empowerment and self-management are significant tasks in the daily clinical practice of general practitioners (GPs) working both in primary health care and in the private sector*" (Allen *et al.*, 2011). A recent suggested definition of the European Society of General Practice/Family Medicine (WONCA Europe) which is the Regional Organisation of the World organization of Family Doctors (WONCA), GPs are: "*Personal doctors, primarily responsible for the provision of comprehensive and continuing care to every individual seeking medical care irrespective of age, sex and illness. They care for individuals in the context of their family, their community, and their culture, always respecting the autonomy of their patients. They recognise they will also have a professional responsibility to their community. In negotiating management plans with their patients they integrate physical, psychological, social, cultural and existential factors, utilising the knowledge and trust engendered by repeated contacts. General practitioners/family physicians exercise their professional role by promoting health, preventing disease, providing cure, care, or palliation and promoting patient empowerment and self management. This is done either directly or through the services of others according to their health needs and resources available within the community they serve, assisting patients where necessary in accessing these services. They must take the responsibility for developing and maintaining their skills, personal balance and values as a basis for effective and safe patient care*" (Allen *et al.*, 2011).

GPs are in prominent position to deliver age- and sex-specific preventive and health promotion interventions, when patients visit them for any reason, mainly due to the fact that two thirds of the population visit their GP one or more times each year and 90% at least once in 5 every years (Fraser, 1999).

It must be noted that due to structural and organizational differences of the practice in Europe, there is a large variation in the degree of involvement of general practitioners in preventive activities (Boerma, van der Zee and Fleming, 1997).

Previous research relevant to the role of GPs in prevention and health promotion has been concentrated on specific topics such as attitudes and involvement in health promotion and lifestyle counselling and perception of GPs in modifying behavior (Duaso and Cheung, 2002; Douglas *et al.*, 2006).

GPs working in primary health care are considered to be ideally positioned to deliver tobacco treatment interventions (World Health Organization, 2008b), for three basic reasons: GPs contact a large part of the population regularly and at least once per year (Ganry and Boche, 2005), tobacco treatment delivery may be more acceptable as part of GP's role in disease prevention and healthy lifestyle promotion (Cornuz *et al.*, 2002) and trustful interpersonal relationship can be developed between the patient and the GP working in primary health care (Cabana and Jee, 2004).

A meta-analysis was held by the United States Department of Human Health Service (USDHHS) Clinical Practice Guidelines for Treating Tobacco Use and Dependence regarding the efficacy of practitioner advice and counselling efficacy in terms of tobacco treatment delivery. The pooled odds ratio (OR) of cessation for GPs advice to quit compared to no advice was 1.3 (95% CI 1.01, 1.6) for brief counselling of less than 3 minutes, 1.6 (95% CI 1.2-2.0) for low intensity counselling of 3 to 10 minutes and 2.3 (95% CI 2.0-2.7) for higher intensity counselling of more than 10 minutes.(12) which is equivalent to an increase in smoking cessation rate of approximately 2.5%, 5% and 11.2%, respectively (Fiore *et al.*, 2008). A second metanalysis regarding physician's advice to quit smoking compared to controls, was held by the Cochrane Collaboration, examining also the efficacy of minimal and intensive cessation interventions. Results revealed a significant increase in the rate of quitting relative risk (RR) 1.66 (95% CI 1.42-1.94) for brief advice and RR 1.84 (95% CI 1.60-2.13) for intensive intervention (Stead, Bergson and Lancaster, 2008).

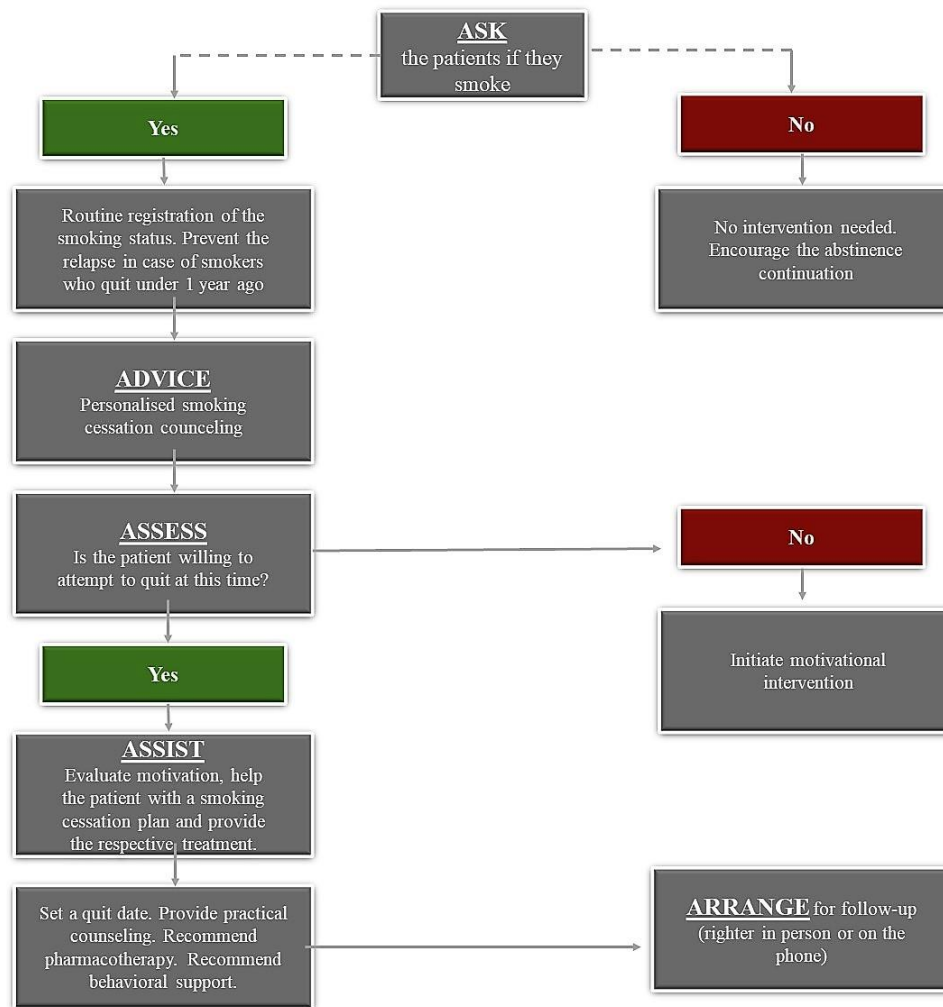## 1.5 Evidence-based tobacco treatment interventions in primary health care

Tobacco dependence due to nicotine addiction can make cessation very difficult, even for those who are strongly committed to quit, with very high relapse rates within the first year. More specifically, of daily smokers who attempt to quit without support, 96.0–97.0% relapse within 12 months (West, 2012). An overview of the literature shows that results are very modest in patients who quit unassisted. However, tobacco users who seek help from a healthcare professional are up to four times more likely to successfully quit than those who try unassisted (Walsh, RA Sanson-Fisher, 2001).

Finally, the non-adherence to medications and counseling is common, which further reduces the chance for successful smoking cessation (Norwegian Ministry of Health, 2006). Rates of tobacco treatment delivery however remain sub-optimal in primary care settings in Europe (Mcewen and West, 2001; Jiménez-Ruiz *et al.*, 2015; Everatt, Zolubiene and Grassi, 2016).

All the above, contribute to the importance of tobacco treatment delivery. However, there is a well-documented practice gap in Greece, related to the rates at which smoking cessation is being addressed by practitioners. Although, a significant percentage (44.0%) of tobacco users in Greece are interested in quitting in the immediate future (Schoretsaniti et al., 2014), only 1.0% reported receiving quitting support from a health professional (European Commission, 2017).

Description of 5As model

The 5A's model is considered an evidence-based model for integrating tobacco dependence treatment into clinical settings and has been shown to increase quit attempts and cessation rates and consists of the following fundamental strategies: "ask" all patient about their smoking status, "advise" all patients who report tobacco use to quit smoking, "assess" readiness to quit smoking, "assist" with making a quit attempt, and "arrange" follow-up support (Fiore *et al.*, 2008; ENSP *et al.*, 2018). Figure 1 outlines the 5As model.

ASK
the patients if they smoke

Yes

No

Routine registration of the smoking status. Prevent the relapse in case of smokers who quit under 1 year ago

No intervention needed. Encourage the abstinence continuation

ADVICE
Personalised smoking cessation counceling

ASSESS
Is the patient willing to attempt to quit at this time?

No

Yes

Initiate motivational intervention

ASSIST
Evaluate motivation, help the patient with a smoking cessation plan and provide the respective treatment.

Set a quit date. Provide practical counseling. Recommend pharmacotherapy. Recommend behavioral support.

ARRANGE for follow-up (righter in person or on the phone)

S

Source: (ENSP *et al.*, 2018)

Figure 1: The 5As model for tobacco treatment delivery in clinical settings

The 'Ottawa Model for Smoking Cessation'

The 'Ottawa Model for Smoking Cessation' (OMSC) is a multi-component intervention for addressing tobacco use with smokers in primary care settings and it has been tested in general practice settings in Canada. The model was first developed based on the experience of the University of Ottawa Heart Institute customized for the hospital settings aiming to increase the number of smokers who achieve long-term abstinence following hospitalization (Papadakis *et al.,* 2010; Reid *et al.,* 2006). The OMSC is a smoking cessation intervention based on the 3 A's

framework (an adaptation of the 5As model) using an interdisciplinary approach to tobacco treatment delivery. The A's are: Asking about smoking status, Advising (delivering advice and a brief intervention) and acting (referring patients to a clinic nurse, nurse practitioner, or pharmacist for a dedicated cessation consult) (Papadakis *et al.*, 2016). As part of the model health professionals provide dedicated cessation consult, offered counseling, addressed issues of pharmacotherapy, and scheduled follow-up visits (Papadakis *et al.*, 2016).

Several evaluations of the OMSC have been completed. In an evaluation involving a sample consisted of 32 practices, four hundred eighty-one primary care clinicians and more than 3,500 patients who smoked demonstrated significant improvements in the rates at which evidence-based tobacco treatment is delivered to patients (Papadakis *et al.*, 2013, 2016). More specifically, rates of delivery of the 3 A's increased significantly after the implementation of OMSC program (Ask: 55.3% vs 71.3%, p <0.001; Advise: 45.5% vs 63.6%, p <0.001; Act: 35.4% vs 54.4%, p<0.001). The adjusted odds ratios (AOR) for the delivery of 3 A's between the pre- and post-assessments were AOR ASK=1.94; (95% CI, 1.61-2.34), AOR ADVISE=1.92; (95% CI, 1.60-2.29) and AOR ACT=2.03; (95% CI, 1.71-2.42) for Act (Papadakis *et al.*, 2016).

In addition to the OMSC multi studies have provided evidence regarding the effectiveness of multicomponent interventions in influencing tobacco treatment delivery in primary care settings (Papadakis 2010).

1.6 Strategies for increasing the rates of tobacco treatment interventions in primary care practice

According to what mentioned above the field of tobacco treatment has progressed significantly in the recent years and evidence-based therapies exist which can significantly increase the odds of quitting.

An important factor for increasing tobacco treatment interventions in primary care practices is that all GPs should be familiar with the latest techniques for assisting their patients with smoking cessation and that they feel comfortable using these evidence-based therapies with their patients.

Multi-component interventions have been found to be the most effective in increasing healthcare professionals performance in the delivery of smoking cessation treatments and improving cessation rates among patients (Papadakis *et al.*, 2010).

A systematic review and meta-analysis of the literature was conducted by Papadakis et al., 2010 in order to examine the strategies for increasing the uptake of smoking cessation interventions in primary care. A number important interventions to support the integration of smoking cessation in primary care were identified (Papadakis *et al.*, 2010) including screening tools, real-time counselling prompts for providers, provider performance feedback, and extended adjunct follow-up counselling for patients, as well as multi-component interventions.

A meta – analysis has highlighted the wide variety of the tools and intervention components which can be used for the evaluation of multi-component programs. Some of the most important are: healthcare professionals' training (100.0%), screeners (40.0%), desktop resources (20.0%), performance feedback (40.0%), academic detailing (40.0%), adjunct counselling (50.0%), and cost-free pharmacotherapy (50.0%) (Papadakis *et al.*, 2010). Some of these strategies and components were also used in the present study but despite the strong evidence to support their efficacy in multi-component interventions, it is not clear which individual components are necessary to produce the desired outcomes as well as the optimal mix of intervention components and this should be a subject of further investigation.

There is also a strong relationship between the number of the counseling sessions as well as the duration of each session, meaning that more intensive and frequent interventions are more efficient in increasing the abstinence ratio (ENSP *et al.*, 2018) GPs should provide support to all smokers interested in receiving tobacco treatment by organizing a treatment plan from at least four face-to-face counseling sessions, combining counseling and pharmacotherapy when possible while non-pharmacological therapy should remain an option when it is best preferred by the patients (ENSP *et al.*, 2018).

The structure and the support the patients get from the health care system is another very important factor. When tobacco treatment is covered from the health care system, patients are significantly more likely to make an attempt to quit (Nardini, Nardini and European Respiratory Society, 2008)

while the use of electronic health records helps health care professionals to systematically identify and treat patients who smoke and has been associated with increased rates of documentation of smoking status and may also increase tobacco treatment (Lindholm *et al.*, 2010).

1.7 The benefits and cost-effectiveness of tobacco treatment delivery

World Bank report reveals that if smoking prevalence is reduced by 50% by 2020, then deaths from tobacco related illnesses will decrease from 520 to around 500 million in 2050 while if half of the current smokers quit by 2020, the number of deaths attributed to smoking would be reduced from 520 to 340 million in 2050 (The World Bank, 1999).

The economic burden caused by smoking is twofold: there is the cost of tobacco use itself and the cost of reducing smoking prevalence. Thus, these costs have been classified as direct, indirect, and intangible. The direct costs occurring from smoking behavior include the cost of illness due to smoking and the health care expenditure related with the treatment of smoking-related illnesses (NHS, 2016).

The direct costs of smoking to the National Health Service (NHS) is equivalent to around 5% of the total NHS budget each year (Callum, Boyle and Sandford, 2011). It also must be noted that smoking poses several indirect costs such as costs of second-hand smoking, costs to employers in the form of loss of productivity and absenteeism of smokers due to smoking-related illnesses (Halpern *et al.*, 2001).

Over the past years, numerous studies are suggesting that smoking cessation interventions, combined with regulations and legislations, are effective ways to reduce smoking prevalence (Song *et al.*, 2002; Woolacott *et al.*, 2002; Collins and Lapsley, 2010). Additionally, there are strong evidence that tobacco treatment interventions are cost-effective and economically reasonable ways of appropriating health care resources (Woolacott *et al.*, 2002; Kaper *et al.*, 2006; Kahende *et al.*, 2008; Trapero-Bertran, 2009; Taylor *et al.*, 2011).

A recent review of the literature regarding the pharmacological and medical treatment interventions for smoking cessation across countries, found that cost per life year saved

ranged between US$128 and US$1,450 and up to US$4,400 per Quality-adjusted life year (QALY) saved (Ekpu and Brown, 2015). The comparison of the pharmacological interventions, revealed

that varenicline (regardless the behavioral interventions) seemed to be the most cost-effective therapy, followed by bupropion and NRT treatment (Ekpu and Brown, 2015).

The review also concluded that pharmacotherapy tends to yield more positive results in terms of quitters than other cessation interventions. Pharmacotherapies such as varenicline in combination with behavioral treatment is cost effective from both cost per LY and cost per QALY.

2.1 Aim & Objectives of the study

The aim of this thesis was to evaluate the efficacy of the tobacco treatment training intervention in integrating treatment of tobacco dependence into GPs' daily clinical practice.

Study objectives

The primary objectives of this research are to determine whether the tobacco treatment training intervention when delivered among GPs can:

1) Increase GPs' knowledge, attitudes, beliefs, perceived behavioral control, and intentions related to the delivery of tobacco treatment (**Publication #3**)

2) Change GPs' behaviors related to the delivery of tobacco treatment interventions (4As delivery), (**Publication #3**)

2.2 Research questions and research hypotheses

Research question 1: Can the tobacco treatment training intervention when delivered among GPs increase GPs' knowledge, attitudes, beliefs, perceived behavioral control, and intentions related to the delivery of tobacco treatment?

Research hypothesis:

Our research hypothesis is that the tobacco treatment intervention will result in significant improvement in GPs' knowledge, attitudes, beliefs, perceived behavioral control, and intentions related to the delivery of tobacco treatment.

Research question 2: Can the tobacco treatment training intervention when delivered among GPs change GPs' behaviors related to the delivery of tobacco treatment interventions (4As delivery)?

Research hypothesis:

Our research hypothesis is that the tobacco treatment intervention will result in significant change of the GPs' behaviors by increasing the delivery of tobacco treatment interventions (4As delivery).

Chapter 3: Methodology

… In theory there is no difference between theory and practice. In practice there is.

(Yogi Berra)

3.1 Theoretical Framework

Ajzen's Theory of Planned Behavior (TPB) was used to guide intervention design (Ajzen, 1991). The TPB incorporates both social influences and personal factors as predictors, specifying a limited number of psychological variables that can influence a behavior which are attitude, subjective norms, perceived behavioral control (PBC) and intention. The first is attitude toward the behavior (i.e., whether the behavior is seen as good or bad). Second are subjective norms, which are conceptualized as the pressure that people perceive from others who are important to them in order to execute a behavior. Third, PBC is conceptualized as one's evaluation about the ease or difficulty of adopting the behavior. Finally, attitudes, subjective norms and PBC are proposed to influence behavior through their influence on intentions, which is someone's motivation to act in a specific way and shows how hard the person is willing to try and how much time and effort he is willing to devote in order to perform a behavior (Ajzen, 1991; Rivis and Sheeran, 2003)

Specifically the intervention programme aimed to influence rates of GP tobacco treatment delivery via a transformation of GP attitudes towards tobacco use and treatment (attitudes); the establishment of new social and clinical norms related to tobacco treatment in primary care practice settings (normative beliefs); increasing GPs' confidence in their ability to effectively deliver evidence-based tobacco treatment (perceived behavioral control also known as self-efficacy); and GPs intentions to deliver tobacco treatment to patients (Girvalaki *et al.*, 2016).
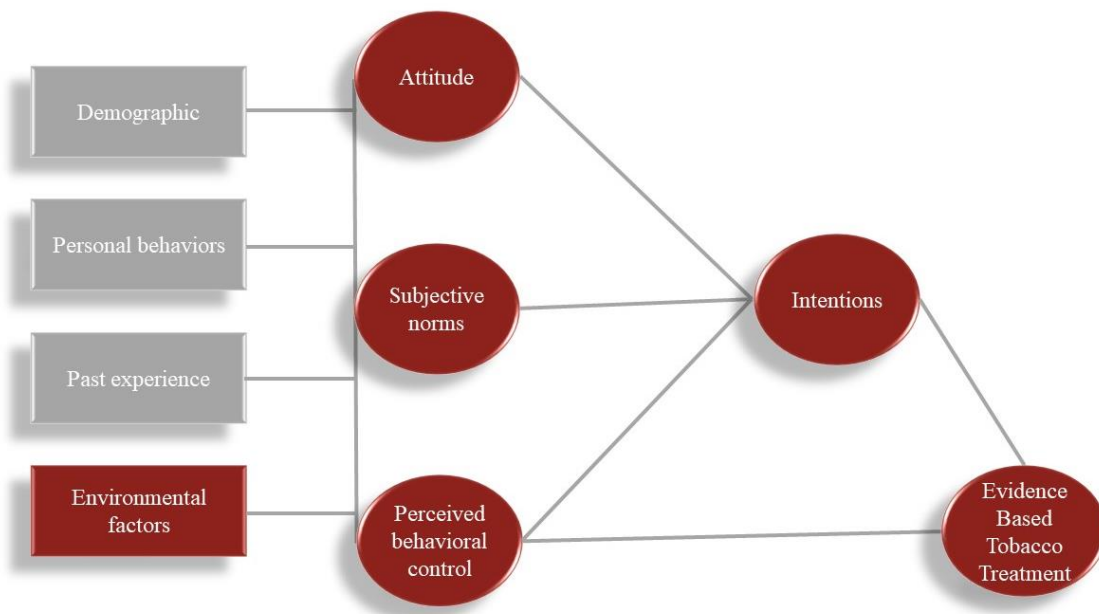
Figure 2: Conceptual framework for the delivery of evidence-based tobacco treatments by GPs

Figure 2 provides a schema of the conceptual framework for the delivery of evidence-based tobacco treatments by GPs. We employed several tactics within the training curricula and multi-component intervention program to enhance uptake into practice which are grounded in TPB.

3.2 Methods and population of the study

We conducted a non-randomized pre-post controlled pilot study, involving 24 GPs from Crete, Greece. This study received approval from the University Hospital of Heraklion Ethics Board (#18078) and was registered on ISRCTN (#10306198).

This PhD Thesis was conducted within the context of TiTAN CRETE project which was supported by Global Bridges: Healthcare Alliance for Tobacco Dependence Treatment and Pfizer Independent Grants for Learning and Change (GB-13522581).

3.2.1 Research question #1

> **Research question 1:** Can the tobacco treatment training intervention when delivered among GPs increase GPs' knowledge, attitudes, beliefs, perceived behavioral control, and intentions related to the delivery of tobacco treatment?

Setting and participants

GPs (n=14) from the Practice Based Research Network, affiliated with the Clinic of Social and Family Medicine at the University of Crete, were exposed to the tobacco treatment training intervention in Heraklion, Greece. From the 16 GPs who were invited to participate, one GP in the intervention group withdrew from the study prior to data collection and a second from the same group withdrew after the pre-intervention assessment was completed. These baseline data were removed from the analysis, **(Publication #3)**.

Tobacco Treatment Intervention Programme

   The intervention delivered among GPs working in primary health care was designed to reflect the local language; cultural norms related to tobacco use; the health system and GPs clinical practice routines in Greece but based on 'Ottawa Model for Smoking Cessation' (OMSC), which, is a multi-component intervention for addressing tobacco use with smokers in primary care settings and it has been tested in general practice settings in Canada.

The intervention included a core 8-hour tobacco dependence treatment training programme, booster training, and the dissemination of GP and patient resources.

The training was tailored to provide knowledge and skills to support the integration of the 4As specifically into busy primary care practice settings. The core training covered the health effects of smoking in Greece, the pathophysiology of nicotine addiction, the role of primary care in treating tobacco addiction, brief advise to quit, pharmacotherapy, motivational interviewing techniques, and special populations.

Two mandatory 3-hour booster training sessions were delivered 1- and 3-months after the core training. During the booster training content covered in the core training was reviewed and more advanced topics introduced including conducting an initial 'Quit Plan' consultation and follow-up consultation, motivational interviewing skills, cognitive behavioural therapy, and use of the tools. The booster sessions were designed to reinforce the adoption of new practice behaviors and offer practical skills-based training focused on patients in the GP's own practice. The programme employed active learning methods such as role-play and case-study approaches known to enhance skill and practice change and was delivered by a team of internationally recognized tobacco treatment experts (Mostofian et al., 2015).

A tool kit of resources was adapted for use in primary care settings in Greece and disseminated to GPs in the intervention group. The intervention tools were designed to: a) provide real time prompts for evidence-tobacco treatment delivery, b) serve as teaching tools during patient interactions, and c) assist with reducing the time required for consultation. These tools included: a patient tobacco use survey, GP consult form, GP medication reference sheets, and patient quit plan booklet.

Data Collection & outcomes evaluation

Apart from the baseline survey (Questionnaire 1), GPs in the intervention group completed a follow-up survey at the end of the 1-day training session (Questionnaires 2,3) and four months after to assess changes in GP knowledge, attitudes, self-efficacy and intentions (Questionnaire 1). GP satisfaction with the TITAN intervention was following the core training (Questionnaire 4).

For the evaluation of the outcome measures as described in **Publication #1** (Girvalaki *et al.*, 2016), the current study adapted the surveys previously tested from OMSC Program in Canada (Papadakis *et al.*, 2015).

GP satisfaction (1-item)*,* knowledge (13-items), subjective norms (2-items), attitudes (4-items), and self/efficacy/perceived behavioral control (1-item) and intentions (1-item) regarding the treatment of tobacco use were assessed by survey before and after the intervention programme. All the individual items are presented in **Publication #3**.

Statistical analysis

GP characteristics were compared between time-points (pre and post intervention assessment). Pearson chi-square test was used to examine intervention effects. We examined changes in outcomes of interest before and after exposure to the intervention programme. Data was analyzed using SPSS.

3.2.2 Research question #2

> **Research question 2:** Can the tobacco treatment training intervention when delivered among GPs change GPs' behaviors related to the delivery of tobacco treatment interventions (4As delivery)?

Setting and participants

GPs (n=14) from Heraklion city, were exposed to the intervention. From each GP's practice, a cross-sectional sample of eligible patients was recruited before (n=524) and a different sample of patients after the intervention (n=460). A sample of 10 primary care practices who were not exposed to the intervention was recruited from Rethymnon city and served as a control group and a patient sample was recruited from these practices too (n=317), **(Publication #3)**.

Data Collection & outcomes evaluation

Consecutive patients were screened for eligibility in the waiting rooms of all participating GP practices. Eligible patients were: 18 years of age or older; current smokers (>1 cigarette per day); seen in practice for a non-urgent medical visit or prescription of their medication; and, able to read/understand Greek. During the data collection sampling the study research assistant was

located in the clinic waiting room. Eligible patients who agreed to participate in the study provided written informed consent and completed the demographic portion of the study survey before their appointment with the GPs via interview. They were asked to return after the appointment to answer questions regarding 4As tobacco treatment delivery during their clinic appointment on that day (i.e. index visit), (Questionnaire 6). This methodology was repeated approximately four months following the implementation of the intervention programme, in the intervention group only, in order to recruit a second cross-sectional sample of patients (Questionnaire 6). Patients who participated in the pre-intervention phase were excluded from the post-intervention data collection.

The primary outcome measure was GP performance in the delivery of each of the 4As (ask, advise, assist, arrange). We did not enquire about the "assess" strategy in the present study to shorten the total length of the survey items and was considered less important than the other As in terms of the desired outcomes of the intervention. 4As delivery was assessed via patient exit survey. The survey asked participants whether at the same day practice appointment ("index visit") their GP asked them about their smoking status ("ask"); advised them to quit smoking ("advise– quit smoking"); advised them about the health hazards of tobacco use ("advise – health hazards"); provided assistance with quitting ("assist"); and arranged follow-up support ("arrange"). For the "assist" strategy participants were also asked if their GP provided self-help materials, set a quit date, discussed or prescribed pharmacotherapy, (Questionnaire 6), (**Publications #1 &3**).

Statistical analysis

Practice, GP and patient characteristics were compared between time-points (pre vs. post intervention assessment) and between the intervention groups (intervention vs. control) in order to evaluate the effectiveness of the training program. Multi-level modeling was used to examine intervention effects controlling for GP level clustering. We examined changes in outcomes of interest before and after exposure to the intervention programme in the intervention group only.

In a second analysis we examined differences between the intervention and control group. Given differences were observed in rates of "assist" and "arrange" between intervention and control groups prior to exposure to the intervention, we adjusted for pre-intervention rates of "assist" and

"arrange" in change models. Wald tests were used to obtain p-values and odds ratios with 95% CI were used to summarize the effect estimates. Data was analyzed using STATA.

Chapter 4: Results

… It is critical that all countries act urgently to more effectively protect their people with evidence-based tobacco control policies..

WHO report (2017)

4.1 Research question #1

> **Research question 1:** Can the tobacco treatment training intervention when delivered among GPs increase GPs' knowledge, attitudes, beliefs, perceived behavioral control, and intentions related to the delivery of tobacco treatment?

Significant increases were documented in six of the thirteen knowledge areas assessed between the pre-post intervention assessments. The knowledge domains were: awareness of safety of continuing to smoke while using Nicotine Replacement Therapies (NRTs) (33.3% vs. 91.7%; p=0.009); common side effects of quit smoking medications (58.3% vs. 100.0%, p=0.037); relationship between stress and quitting smoking (33.3% vs 83.3%, p=0.036); impact of pregnancy on nicotine metabolism (16.7% vs. 83.3%, p=0.003); most common reasons for relapse (50.0% vs. 91.7%; p= 0.025); efficacy of a physician's advice to quit smoking on motivation (27.3% vs. 100.0%, p<0.001).

Favorable changes in the intervention group were documented for attitudes, however these were not statistically significant. A large and statistically significant increase in GP self-efficacy was documented between the pre-and post-intervention assessments (14.3% vs. 64.3%; p=0.034). A large increase in intentions to address tobacco use as a priority was also documented but was not statistically significant (42.9% vs. 71.4%; p=0.183), **(Publication #3)**.

4.2 Research question #2

> **Research question 2:** Can the tobacco treatment training intervention when delivered among GPs change GPs' behaviors related to the delivery of tobacco treatment interventions (4As delivery)?

Comparison between the pre- post intervention assessment in the Intervention group

Rates of delivery of the 4As in the intervention group increased significantly following implementation of the TiTAN programme. Specifically, the adjusted odds ratios (AOR) and 95% confidence intervals (CI) for 4As delivery were: AOR "ask" 3.66 (95%CI: 2.61, 5.14); AOR "advise" 4.21 (95%CI 3.02, 5.87); AOR "assist" 13.10 (95%CI: 8.83, 19.42) and AOR "arrange" 4.75 (95%CI 2.67, 8.45).

Significant variability was observed in the change documented across GPs. For example, changes in rates of "advise" between the pre-post assessment between providers ranged from 0.0% to 75.0% **(Publication #3)**.

Comparison between the intervention and control group

Baseline differences were documented between the intervention and control group for "assist" and "arrange" variables. However, we adjusted for pre-assessment rates in the analysis. The adjusted analysis documented significant differences between intervention and control group in all 4As, however CI were wide for some of the 4As. The AOR for "ask" was 4.12 (95%CI 1.31, 13.01); AOR for "advise" was 5.03 (95%CI 1.87, 13.56); AOR for "assist" was 18.24 (95%CI 18.24, 113.25) and AOR for "arrange" was 15.07 (95%CI 3.49, 65.12), (Publication #3). Full results of the study are presented in Publication # 3 entitled: "Training general practitioners in evidence-

based tobacco treatment: an evaluation of the Tobacco Treatment Training Network in Crete (TiTAN-Crete) intervention".

Chapter 5: Strengths & Limitations

… helping people access cessation support can be a challenge as it requires sustained commitment ..

WHO report (2017)

5.1 Strengths of the study

The present study provides the first high quality data for knowledge, attitudes, and rates of tobacco treatment delivery in primary healthcare in Greece. 4 As delivery was evaluated by patient-reported data which are shown to be more accurate than providers self-report (Pbert et al., 1999). Our study achieved a very high participation among both GPs and eligible smokers, which may be attributed to the high respect given in Greece to the research which is University-based.

Although the sample size estimations based on rates of GP tobacco treatment 'advise' indicated that the required number of patients per participating GP was 28, we increased to 36 per GP to account for possible loss to follow-up among GPs.

The profile of the participants sampled appears to be representative of the broader population of smokers in Greece and other Southern European Countries (European Commission, 2017). According to the latest Eurobarometer report of the European Commission, Greece is the country with the highest prevalence of smoking (37.0%) while there are persistently higher rates of smoking in Southern Europe (Bulgaria, 36%; Croatia, 35%; Hungary, 35%; Poland, 30%; Czech Republic, 29%).

An effort was made to maximize generalizability of the study findings by including clinics from both urban, suburban, and rural settings, including public and private practices, as well as including all patients who consume greater than one cigarette per day.

5.2 Limitations of the study

A limitation of our study was the use of a non-randomized design. However, the use of the control group and pre-post intervention measurements, assisted with minimizing the potential confounding factors in the observed changes. Due to the study's limited timeframe and budgetary issues, we decided to conduct measurements in the control group at one time point only as it was felt reasonable that over the very short time frame (2-4 months) no changes would be expected. To our knowledge, there were no other factors, which may have influenced rates of tobacco treatment delivery beyond the intervention program.

We detected differences in the baseline rates of 'assist' and 'arrange' between the control and

intervention groups, suggesting our study groups may not have been 100.0% comparable at baseline. However, we controlled for this discrepancy in our analysis.

The primary outcome measures of the present study were GP performance in the delivery of each of the 4As (ask, advise, assist, arrange). We did not enquire about the "assess" strategy to shorten the total length of the survey items and was considered less important than the other As in terms of the desired outcomes of the intervention.

The voluntary nature of the GPs participation and the fact that they all were members of a University based research network may mean that participants were more motivated than the general population of GPs. Although, GPs were blind to the assessment details, it is possible that GPs over-performed during the data collection period as they were aware of when data collection activities were occurring in the clinic.

This study focussed only on GPs, however results from OMSC project found that the specific intervention was suitable for implemented in interdisciplinary teams and other health professionals (Papadakis *et al.*, 2016) and should be considered for future research.

Our study documented a trend to suggest that GPs who demonstrated the greatest improvements in 4As delivery were those who had the lowest performance before the intervention and where there was the largest opportunity for improvement. This observation may suggest that future interventions should specifically target GPs with lower performance.

The small percentage of patients reporting readiness to quit within the next 30 days, may partially explain the relatively low rates at which GPs delivered 'assistance' with quitting and 'arranged' follow-up meetings, as these interventions are typically delivered to patients interested in quitting in the immediate future.

Despite efforts made to increase the study's generalizability (urban-rural areas, private- public practices, high rates of participation), the results must be treated with caution since the intervention was delivered in the Cretan population only.

The fact that the practices recruited from the study were only from two geographic regions of Crete (Heraklion and Rethymnon) may be an additional threat to the study's generalizability. It would

be an important step for future research to replicate the study findings in other practice types and geographic regions of Greece and Europe in order to address this limitation.

5.3 Implications to practice and policy

A large proportion of the smokers in Greece want to quit smoking (Schoretsaniti *et al.*, 2014). Unfortunately, the vast majority of smokers in Greece and in Europe are not accessing evidence-based treatment support in order to quit smoking which may have increased the likelihood of long-term abstinence (European Commission, 2017). The ability to motivate smokers to make a quit attempt, in parallel with the increase of the use of evidence-based cessation treatments, would be of great importance if we are to further impact on smoking outcomes in Greece and in Europe.

GPs are ideally positioned to deliver tobacco treatment interventions (World Health Organization, 2008). Several studied in the past have documented significant improvements in the rates at which primary care providers are documenting smoking status and providing cessation advice (Curry *et al.*, 2008; McIvor, 2009; Szatkowski *et al.*, 2010). In the present study, big improvements were recorded between the pre and post intervention period in GPs' recording smoking status and advising their patients to quit. However, given the fact that all guidelines recommend that all patients should be asked about their smoking status and advised to quit at every visit (World Health Organization, 2008; ENSP *et al.*, 2018), our results suggest that despite the observed improvements there still is a large number of patients who are not regularly advised to quit smoking.

Although there is strong evidence that tobacco treatment interventions are cost-effective and economically reasonable ways of appropriating health care resources (Woolacott *et al.*, 2002; Kaper *et al.*, 2006; Kahende *et al.*, 2008; Trapero-Bertran, 2009; Taylor *et al.*, 2011), there is a lack of implementation knowledge to inform the design and delivery of these interventions into routine clinical practice. Our study adapted OMSC program which was designed by using the best available evidence from the world of tobacco control, health systems, and health behaviour change to form an intervention program aimed at increasing the likelihood at which providers are

delivering evidence-based treatments. The intervention program also aimed to address many of the barriers that are hypothesized to influence delivery of tobacco treatment interventions in primary healthcare.

In addition, the present study offers policy-makers the necessary evidence to support the feasibility and efficacy of multi-component interventions to support the delivery of smoking cessation services within busy primary care practices in Greece. It will be important in system-level if these multicomponent interventions were introduced to support the delivery of smoking cessation treatments in primary care in a country level

This study offered several insights for GPs working in primary healthcare and are willing to implement smoking cessation programs within their daily clinical routine. Although the present study was not specifically designed to test the value of specific implementation factors, there were several components offered to support the implementation of a tobacco treatment program in primary care settings: tobacco use screeners, consult forms, patient's self-help booklets, pharmacotherapy cost leaflet, contraindications and side-effects leaflet, waiting room posters were created and embedded into existing clinic routines.

The intervention provided two low cost intervention strategies which were training and provider tools. The OMSC in fact delivers 10 best practices and a total of six interventions strategies (Papadakis *et al.,* 2010; 2013; 2016). Due to funding limitations not all strategies were tested as part of the TiTAN program. The implementation of the remainder of the strategies may assist with further increasing 4As delivery with rates of ASSIST and ARRANGE follow-up.

The lack of electronic medical record or recording of smoking status in a patient's medical file was reported by the GPs as an important barrier in advising patients to quit of arranging follow-up meeting. Special attention should be given in order to program implementation as the quality of implementation appears to be associated with larger improvements in 5As delivery.

5.4 Implications for future research

Given the limitations related to sample size, a larger trial involving a greater number of primary care clinics and randomization is recommended to strengthen the evidence regarding the

effectiveness of the multi-component intervention program in primary care settings. A larger trial would assist with addressing some significant areas of research that were not addressed in the pilot study. The first is the ability to adequately examine the impact of the multi-component intervention on patient quit rates between the pre- and post-assessments periods, and measure abstinence at 6 months or more as well as examine the differences between group of healthcare professional. The second relates to the ability to examine clinic-level factors that are associated with high and low performance with respect to the delivery of evidence-based smoking cessation treatments.

Based on the above, it would also be important and useful to develop and test new instruments for assessing variables hypothesized to mediate 5As delivery at both the level of the clinic and the provider.

In the present study, GPs expressed concerns on their modest levels of self-efficacy in recommending medications and setting a follow-up meeting with their patients, suggesting that GPs continue to lack confidence in their ability to counsel patients who smoke in more complicated aspects of 5As delivery. Additional research is necessary in order to identify better ways to boost GPs self-efficacy for the delivery of smoking cessation treatments.

The present study did not intervene in a patient-level to evaluate smoking abstinence. Future research should examine possible interventions to support long-term abstinence among patients visiting primary healthcare in Greece as part of multi-component interventions. The availability of cost-free quit smoking pharmacotherapy should be considered, as previous research has documented important increases in smoking abstinence when counseling support was combined with cost-free pharmacotherapy (Twardella and Brenner, 2007; Salize *et al.*, 2009).

We must note that our pilot study only evaluated the adaption of 4As delivery, four months after the intervention but the ability of the GPs to maintain the rates at which they deliver 4As in their daily clinical practice was not evaluated. Taking into consideration that after the end of the intervention, it is possible that positive outcomes may revert to baseline and also that initial implementation success does not guarantee institutionalization of outcomes changes (Stange *et al.*, 2003), future research should be designed in order to investigate the rate at which interventions are maintained over a long term period and all the factors which could possibly predict such

maintenance. It would also be important to continue monitoring the GPs from the current study performance in delivering tobacco treatment.

Other important areas of future research that the present study did not reach are patients not motivated to quit, patients hard to reach and special populations such as pregnant women and adolescents.

5.5 Conclusions

To my knowledge, this pilot study was the first one in Crete, offering several insights to GPs willing to introduce tobacco treatment delivery into their daily clinical practice and become tobacco champions. For the purposes of the study, we adapted the evidence-based intervention of the OMSC program, already tested in primary healthcare in Canada and modified it for use in primary health care in Greece, taking the barriers of the local environment into consideration. The study provides initial data supporting the generalizability of the OMSC programme to GPs in Greece. However, further research is required to understand the generalizability of our findings to the larger population of GPs in both Greece and other European settings.

This will be the first study in Crete to publish the evaluation of a multi-component tobacco treatment intervention program for primary care practices. The results of this evaluation were rather encouraging since significant increases in GPs knowledge, perceived behavioral control and rates of 4As delivery were recorded. Finally, the new knowledge and experience occurred from the present study, may work as a rue model for designing future improved programs and policies related the delivery of tobacco treatment interventions in primary care settings.

However, future research is required to better understand important clinic-level factors or barriers associated with the tobacco treatment delivery 5As delivery and pay more attention to provider-level variation. It will also be important to continue to monitor current practice trends and practice gaps in the delivery of tobacco treatment in primary care settings and also focus in special populations and people not motivated to quit.

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Annex

…tobacco is the only legally available consumer product which kills people when it is used entirely as intended.

The Oxford Medical Companion (1994)

Invitation letters

Intervention group

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE

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Ηράκλειο 17/12/2014

ΕΝΗΜΕΡΩΤΙΚΟ ΣΗΜΕΙΩΜΑ ΟΜΑΔΑΣ ΠΑΡΕΜΒΑΣΗΣ

Αγαπητοί συνάδελφοι ,

Επί του παρόντος, η Ελλάδα έχει ένα από τα υψηλότερα ποσοστά καπνίσματος μεταξύ των μελών της Ευρωπαϊκής Ένωσης, το οποίο εκτιμάται λίγο πάνω από 38% για τον ενήλικο πληθυσμό. Το 2011, το κάπνισμα ήταν η αιτία για σχεδόν 200.000 εισαγωγές στα νοσοκομεία της χώρας (8,9% του συνολικού πληθυσμού). Δεδομένης της οικονομικής κρίσης που μαστίζει την χώρα τα τελευταία χρόνια, έχουμε οδηγηθεί σε μεγάλες περικοπές των εθνικών προγραμμάτων κοινωνικής και υγειονομικής περίθαλψης αλλά και των περιορισμένων ευκαιριών για εκπαίδευση και την παροχή υπηρεσιών, ιδίως σε ότι αφορά την στήριξη και εφαρμογή προληπτικών μέτρων για την καπνιστική συνήθεια αλλά και την διακοπή του καπνίσματος.

Μια εκπαιδευτική παρέμβαση ιατρών στην Πρωτοβάθμια Φροντίδα Υγείας, έχει σχεδιαστεί, στα πλαίσια της συνεργασίας της Κλινικής Κοινωνικής και Οικογενειακής Ιατρικής του Πανεπιστημίου Κρήτης με τη Σχολή Δημόσιας Υγείας του Πανεπιστήμιο του Harvard και την Ιατρική Σχολή του Πανεπιστημίου της Ottawa, με πρωταρχικό σκοπό την ανάπτυξη ενός δικτύου κατάρτισμένων ιατρών σχετικά με την αντιμετώπιση του καπνίσματος στην κλινική

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πράξη. Η μελέτη περιλαμβάνει 2 ομάδες ιατρών, την ομάδα παρέμβασης (στην οποία ανήκετε) στην οποία θα πραγματοποιηθεί εκπαίδευση και την ομάδα ελέγχου. Η ομάδα παρέμβασης θα έχει την ευκαιρία να εκπαιδευτεί σε θέματα διακοπής του καπνίσματος από ομάδα εξειδικευμένων επιστημόνων, που έχει διαμορφωθεί για τον σκοπό αυτό.

Επιπλέον, για την επίτευξη αυτού του στόχου, είναι απαραίτητη η συμπλήρωση ενός ερωτηματολογίου που έχει δομηθεί για το σκοπό αυτό. Η συμπλήρωση του ερωτηματολογίου από την ομάδα παρέμβασης (στην οποία ανήκετε) θα γίνει σε δύο φάσεις, πριν και μετά την εκπαίδευση που θα λάβετε. Το ερωτηματολόγιο περιλαμβάνει μια σειρά ερωτήσεων που αφορούν κοινωνικό - δημογραφικά χαρακτηριστικά, καθώς και τις γνώσεις και τις προθέσεις που σχετίζονται με την εφαρμογή της θεραπείας για το κάπνισμα στην καθημερινή κλινική πράξη. Οι απαντήσεις θα είναι απόλυτα εμπιστευτικές και η συμπλήρωση του ερωτηματολογίου απαιτεί 5-10 λεπτά από τον χρόνο σας. Επιπλέον, θα θέλαμε να σας γνωστοποιήσουμε ότι ενδέχεται στο μέλλον κάποιος από τους συνεργάτες μας να επικοινωνήσει μαζί σας τηλεφωνικά για κάποια επιπλέον στοιχεία, απαραίτητα για την πρόοδο της έρευνας. Θα πρέπει επίσης να γνωρίζεται ότι διατηρείται το δικαίωμα να αποχωρήσετε από την μελέτη, όποια στιγμή εσείς το επιθυμείτε.

Φυσικά για τα παραπάνω χρειαζόμαστε την συμμετοχή και την ενυπόγραφη συγκατάθεσή σας. Γι' αυτό παρακαλούμε αφού διαβάσετε προσεκτικά το γράμμα αυτό υπογράψετε και επιστρέψτε την επόμενη σελίδα στον υπεύθυνο της έρευνας.

Ευχαριστούμε και πάλι για τη συνεργασία

Χρήστος Λιονής

Καθηγητής Τομέα Κοινωνικής Ιατρικής
Τμήμα Ιατρικής, Πανεπιστήμιο Κρήτης

Control group

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ **UNIVERSITY OF CRETE**		**ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ** **FACULTY OF MEDICINE**	

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Ηράκλειο 27/10/2015

ΕΝΗΜΕΡΩΤΙΚΟ ΣΗΜΕΙΩΜΑ ΟΜΑΔΑΣ ΕΛΕΓΧΟΥ

Αγαπητέ/ή συνάδελφε ,

Επί του παρόντος, η Ελλάδα έχει ένα από τα υψηλότερα ποσοστά καπνίσματος μεταξύ των μελών της Ευρωπαϊκής Ένωσης, το οποίο εκτιμάται λίγο πάνω από 38% για τον ενήλικο πληθυσμό. Το 2011, το κάπνισμα ήταν η αιτία για σχεδόν 200.000 εισαγωγές στα νοσοκομεία της χώρας (8.9% του συνολικού πληθυσμού). Δεδομένης της οικονομικής κρίσης που διέρχεται η χώρα τα τελευταία χρόνια, έχουμε οδηγηθεί σε μεγάλες περικοπές των εθνικών προγραμμάτων κοινωνικής και υγειονομικής περίθαλψης αλλά και των περιορισμένων ευκαιριών για εκπαίδευση και την παροχή υπηρεσιών, ιδίως σε ότι αφορά την στήριξη και εφαρμογή προληπτικών μέτρων για την καπνιστική συνήθεια αλλά και την διακοπή του καπνίσματος.

Αξίζει να σημειωθεί ότι, παρά το τεράστιο βάρος για το σύστημα υγειονομικής περίθαλψης, προγενέστερη έρευνά μας έδειξε ότι ένα σημαντικό ποσοστό (44%) των καπνιστών στην Ελλάδα ενδιαφέρονται να σταματήσουν το κάπνισμα στο άμεσο μέλλον. Ως εκ τούτου, είναι επιτακτική η ανάγκη, μέσα από την συνεργασία και την καινοτομία να βρεθεί τρόπος αντιμετώπισης της κυρίας αλλά και αποτρέψιμης αιτίας θανάτου μεταξύ των Ελλήνων πολιτών, που δεν είναι άλλη από την εξάρτηση από τον καπνό.

Μια εκπαιδευτική παρέμβαση ιατρών στην Πρωτοβάθμια Φροντίδα Υγείας, έχει σχεδιαστεί, στο πλαίσιο της συνεργασίας της Κλινικής Κοινωνικής και Οικογενειακής Ιατρικής του Πανεπιστημίου Κρήτης με τη Σχολή Δημόσιας Υγείας του Πανεπιστήμιο του Harvard και την Ιατρική Σχολή του Πανεπιστημίου της Ottawa, με πρωταρχικό σκοπό την ανάπτυξη ενός δικτύου κατάρτισης ιατρών και επαγγελματιών υγείας στην Πρωτοβάθμιας Φροντίδας Υγείας

σχετικά με την διακοπή του καπνίσματος. Η μελέτη περιλαμβάνει 2 ομάδες ιατρών, την ομάδα παρέμβασης και την ομάδα ελέγχου (στην οποία ανήκετε).

Για την επίτευξη αυτού του στόχου, θα θέλαμε να σας ζητήσουμε την συμμετοχή σας στην μελέτη, απαντώντας, σε ένα ερωτηματολόγιο που έχει δομηθεί για το σκοπό αυτό. Η συμπλήρωση του ερωτηματολογίου από την ομάδα ελέγχου (στην οποία ανήκετε) θα γίνει μόνο μια φορά στην έναρξη της μελέτης. Το ερωτηματολόγιο περιλαμβάνει μια σειρά ερωτήσεων που αφορούν κοινωνικό - δημογραφικά χαρακτηριστικά, καθώς και τις γνώσεις και τις προθέσεις που σχετίζονται με την εφαρμογή της θεραπείας για το κάπνισμα στην καθημερινή κλινική πράξη. Οι απαντήσεις θα είναι απόλυτα εμπιστευτικές και η συμπλήρωση του ερωτηματολογίου απαιτεί 5-10 λεπτά από τον χρόνο σας. Θα πρέπει επίσης να γνωρίζεται ότι διατηρείται το δικαίωμα να αποχωρήσετε από την μελέτη, όποια στιγμή εσείς το επιθυμείτε. Επιπλέον, συνεργάτης του προγράμματος θα επικοινωνήσει μαζί σας για να συλλέξει δείγμα 36 καπνιστών από το ιατρείο σας.

Φυσικά για τα παραπάνω χρειαζόμαστε την συμμετοχή και την ενυπόγραφη συγκατάθεσή σας. Γι' αυτό παρακαλούμε αφού διαβάσετε προσεκτικά το γράμμα αυτό υπογράψετε και επιστρέψτε την επόμενη σελίδα στον υπεύθυνο της έρευνας. Θα σας παρακαλούσαμε θερμά να αφήσετε τα ερωτηματολόγια και το έντυπο συγκατάθεσης στο ΚΥ Σπηλίου από όπου και θα τα παραλάβουν οι συνεργάτες μας.

Ευχαριστούμε και πάλι για τη συνεργασία

Χρήστος Λιονής

Καθηγητής Τομέα Κοινωνικής Ιατρικής
Τμήμα Ιατρικής, Πανεπιστήμιο Κρήτης

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE

ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ
FACULTY OF MEDICINE

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DEPARTMENT OF SOCIAL MEDICINE
Fax: 2810 394592

Ηράκλειο 17/12/2014

ΕΝΗΜΕΡΩΤΙΚΟ ΣΗΜΕΙΩΜΑ ΕΠΙΣΚΕΤΩΝ

Αγαπητέ κύριε/α,

Επί του παρόντος, η Ελλάδα έχει ένα από τα υψηλότερα ποσοστά καπνίσματος μεταξύ των μελών της Ευρωπαϊκής Ένωσης, το οποίο εκτιμάται λίγο πάνω από 38% για τον ενήλικο πληθυσμό. Το 2011, το κάπνισμα ήταν η αιτία για σχεδόν 200.000 εισαγωγές στα νοσοκομεία της χώρας (8.9% του συνολικού πληθυσμού). Δεδομένης της οικονομικής κρίσης που διέρχεται η χώρα τα τελευταία χρόνια, έχουμε οδηγηθεί σε μεγάλες περικοπές των εθνικών προγραμμάτων κοινωνικής και υγειονομικής περίθαλψης αλλά και των περιορισμένων ευκαιριών για εκπαίδευση και την παροχή υπηρεσιών, ιδίως σε ότι αφορά την στήριξη και εφαρμογή προληπτικών μέτρων για την καπνιστική συνήθεια αλλά και την διακοπή του καπνίσματος.

Αξίζει να σημειωθεί ότι, παρά το τεράστιο βάρος για το σύστημα υγειονομικής περίθαλψης, προγενέστερη έρευνά μας έδειξε ότι ένα σημαντικό ποσοστό (44%) των καπνιστών στην Ελλάδα ενδιαφέρονται να σταματήσουν το κάπνισμα στο άμεσο μέλλον. Ως εκ τούτου, είναι επιτακτική η ανάγκη, μέσα από την συνεργασία και την καινοτομία να βρεθεί τρόπος αντιμετώπισης της κυρίας αλλά και αποτρέψιμης αιτίας θανάτου μεταξύ των Ελλήνων πολιτών, που δεν είναι άλλη από την εξάρτηση από τον καπνό.

Μια εκπαιδευτική παρέμβαση ιατρών στην Πρωτοβάθμια Φροντίδα Υγείας, έχει σχεδιαστεί, στο πλαίσιο της συνεργασίας της Κλινικής Κοινωνικής και Οικογενειακής Ιατρικής του Πανεπιστημίου Κρήτης με τη Σχολή Δημόσιας Υγείας του Πανεπιστημίου του Harvard και την Ιατρική Σχολή του Πανεπιστημίου της Ottawa, με πρωταρχικό σκοπό την ανάπτυξη ενός δικτύου κατάρτισης ιατρών και επαγγελματιών υγείας στην Πρωτοβάθμιας Φροντίδας Υγείας

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σχετικά με την διακοπή του καπνίσματος. Στο τέλος του προγράμματος και με την πολύτιμη βοήθεια σας, θα είμαστε σε θέση να αξιολογήσουμε την αποτελεσματικότητα αλλά και την ανάγκη επέκτασης τέτοιου είδους προγραμμάτων στην υπόλοιπη Ελλάδα που κύριο στόχο έχουν να βοηθήσουν όλους όσους είναι καπνιστές και το επιθυμούν, με την κατάλληλη καθοδήγηση από τους επαγγελματίες υγείας, να καταφέρουν να απαλλαγούν από την επιβλαβή αυτή συνήθεια.

Για την επίτευξη αυτού του στόχου, θα θέλαμε να σας ζητήσουμε την συμμετοχή σας στην μελέτη, απαντώντας σε ένα <u>**ερωτηματολόγιο**</u> **που έχει δομηθεί για το σκοπό αυτό. Το ερωτηματολόγιο περιλαμβάνει μια σειρά ερωτήσεων που αφορούν κοινωνικό - δημογραφικά χαρακτηριστικά, την προσωπική σας εμπειρία σχετικά με την καπνιστική συνήθεια καθώς και την εμπειρία σας έως τώρα σχετικά με την αντιμετώπιση που έχει ο γιατρός απέναντι σας στο θέμα του καπνίσματος. Οι απαντήσεις θα είναι απόλυτα εμπιστευτικές** και η συμπλήρωση του ερωτηματολογίου απαιτεί 5-10 λεπτά από τον χρόνο σας. Επιπλέον, θα θέλαμε να σας γνωστοποιήσουμε ότι ενδέχεται στο μέλλον κάποιος από τους συνεργάτες μας να επικοινωνήσει μαζί σας τηλεφωνικά για κάποια επιπλέον στοιχεία, απαραίτητα για την πρόοδο της έρευνας. Θα πρέπει επίσης να γνωρίζεται ότι διατηρείται το δικαίωμα να αποχωρήσετε από την μελέτη, όποια στιγμή εσείς το επιθυμείτε.

Φυσικά για τα παραπάνω χρειαζόμαστε την συμμετοχή και την ενυπόγραφη συγκατάθεσή σας. Γι' αυτό παρακαλούμε αφού διαβάσετε προσεκτικά το γράμμα αυτό υπογράψετε και επιστρέψτε την επόμενη σελίδα στον υπεύθυνο της έρευνας.

Ευχαριστούμε και πάλι για τη συνεργασία

Χρήστος Λιονής

Καθηγητής Τομέα Κοινωνικής Ιατρικής
Τμήμα Ιατρικής, Πανεπιστήμιο Κρήτης

Consent forms

Doctors

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ   ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ

UNIVERSITY OF CRETE   FACULTY OF MEDICINE

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ΤΟΜΕΑΣ ΚΟΙΝΩΝΙΚΗΣ ΙΑΤΡΙΚΗΣ   **DEPARTMENT OF SOCIAL MEDICINE**

Tel.: +30 2810 394592   Fax: 2810 394592

Ηράκλειο / /2015

> **Παρακαλούμε να επιστραφεί στον υπεύθυνο της έρευνας**

ΣΥΜΦΩΝΗΤΙΚΟ ΑΠΟΔΟΧΗΣ ΣΥΜΜΕΤΟΧΗΣ ΙΑΤΡΩΝ ΠΦΥ

Αφού διάβασα προσεκτικά το γράμμα του καθηγητή Χ. Λιονή σχετικά με τον σκοπό της μελέτης,

ο κάτωθι υπογράφων

(βάλτε Χ στο τετράγωνο της επιλογής σας)

Αποδέχομαι την συμμετοχή μου στην μελέτη

Δεν αποδέχομαι την συμμετοχή μου στην μελέτη

ΟΝΟΜΑ _____

ΕΠΩΝΥΜΟ _____

ΗΜΕΡΟΜΗΝΙΑ _____

ΥΠΟΓΡΑΦΗ _____

Patients

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ   ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ

UNIVERSITY OF CRETE   FACULTY OF MEDICINE

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ΤΟΜΕΑΣ ΚΟΙΝΩΝΙΚΗΣ ΙΑΤΡΙΚΗΣ   DEPARTMENT OF SOCIAL MEDICINE

Tel.: +30 2810 394592   Fax: 2810 394592

Ηράκλειο 17/12/2014

> **Παρακαλούμε να επιστραφεί στον υπεύθυνο της έρευνας**

ΣΥΜΦΩΝΗΤΙΚΟ ΑΠΟΔΟΧΗΣ ΣΥΜΜΕΤΟΧΗΣ ΕΠΙΣΚΕΠΤΩΝ

Αφού διάβασα προσεκτικά το γράμμα του καθηγητή Χ. Λιονή σχετικά με τον σκοπό της μελέτης,

ο κάτωθι υπογράφων

(βάλτε Χ στο τετράγωνο της επιλογής σας)

Αποδέχομαι την συμμετοχή μου στην μελέτη

Δεν αποδέχομαι την συμμετοχή μου στην μελέτη

ΟΝΟΜΑ _____

ΕΠΩΝΥΜΟ _____

ΗΜΕΡΟΜΗΝΙΑ _____

ΥΠΟΓΡΑΦΗ _____

Questionnaires

1. GPs questionnaire (Pre-post)

TiTAN CRETE
ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΣΥΜΜΕΤΕΧΟΝΤΩΝ ΙΑΤΡΩΝ Π.Φ.Υ.

ΚΩΔΙΚΟΣ ΙΑΤΡΕΙΟΥ: _____   ΚΩΔΙΚΟΣ ΙΑΤΡΟΥ ΠΦΥ: _____

Αυτή η έρευνα έχει σχεδιαστεί για να συγκεντρώσει στοιχεία που μπορούν να βοηθήσουν στην κατανόηση της τρέχουσας λειτουργίας των ιατρείων, των τρεχόντων πρακτικών που σχετίζονται με τη χρήση καπνού και τα εμπόδια ή άλλους παράγοντες που μπορούν να επηρεάσουν την προσφορά υπηρεσιών που αφορούν στην θεραπεία του καπνίσματος στα ιατρεία. Όλες οι απαντήσεις σας θα παραμείνουν εμπιστευτικές και θα προσδιορίζονται μόνο με βάση τον κωδικό ιατρού ΠΦΥ σε αυτή την έρευνα. Εκτιμούμε ιδιαίτερα την ειλικρίνεια με την οποία θα απαντήσετε στα παρακάτω ερωτήματα.

1. **Ηλικία:** <30 ☐   30-39 ☐   40-49 ☐   50-59 ☐   60-69 ☐   70+ ☐

2. **Φύλο:** Άνδρας ☐   Γυναίκα ☐

3. **Είδος ιατρείου:** Ιδιωτικό ☐   Δημόσιο ☐

4. **Περιοχή ιατρείου:** Αστική ☐   Ημιαστική ☐   Αγροτική ☐

5. **Κατά μέσο όρο, πόσους ασθενείς δέχεστε εβδομαδιαίως:** _____

6. **Πόσο καιρό ασκείτε την ιατρική:** _____

7. **Είδος απασχόλησης:** Ημιαπασχόληση ☐   Πλήρης απασχόληση ☐

8. **Έχετε κατά το παρελθόν παρακολουθήσει κάποιο εκπαιδευτικό πρόγραμμα για την διακοπή του καπνίσματος**
   Ναι ☐   Όχι ☐
   Παρακαλώ προσδιορίστε: _____

9. **Ποια είναι η προσωπική σας εμπειρία από την χρήση καπνού:**
   Είμαι καπνιστής/ια ☐   Είμαι πρώην καπνιστής/ια ☐   Δεν έχω καπνίσει ποτέ ☐

10. **Πόσο θεωρείτε ότι είναι το ποσοστό των καπνιστών στην Ελλάδα αυτή τη στιγμή:**
    <10% ☐   11-30% ☐   31-50% ☐   51+% ☐

11. **Ποιες από τις παρακάτω υποστηρικτικές πρακτικές λειτουργούν στο ιατρείο σας:**
    ☐ Διαδικασία διερεύνησης και καταγραφής του καπνίσματος στους ασθενείς
    ☐ Υλικό αυτοβοήθειας για τους καπνιστές
    ☐ Συμβουλευτικές φόρμες καθοδήγησης για παρεμβάσεις διακοπής του καπνίσματος

Σύγχρονες πρακτικές:
Κατά τον περασμένο μήνα, πόσο συχνά…

Καπνιστική συνήθεια	1 Ποτέ	2 Μερικές φορές	3 Τις μισές φορές	4 Πολλές φορές	5 Πάντα
Ρωτήσατε τους ασθενείς σας εάν καπνίζουν:	☐	☐	☐	☐	☐
Καταγράψατε την καπνιστική συνήθεια στο ιατρικό ιστορικό ενός ασθενούς:	☐	☐	☐	☐	☐
Συμβουλεύσατε τους ασθενείς που καπνίζουν να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Παρείχατε σύντομη συμβουλευτική συνάντηση για την διακοπή του καπνίσματος (3-5 λεπτά):	☐	☐	☐	☐	☐
Δουλέψατε με τον/την ασθενή σας για να ορίσετε ημερομηνία διακοπής του καπνίσματος:	☐	☐	☐	☐	☐
Δώσατε στον/στην ασθενή σας ενημερωτικό υλικό για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Συζητήσατε τις διαθέσιμες φαρμακευτικές αγωγές για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Συνταγογραφίσατε φαρμακευτική αγωγή για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Προγραμματίσατε επανεξέταση ή τηλεφωνική επικοινωνία για να συζητήσετε για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐

12. **Παρακαλώ υποδείξτε πόσο συμφωνείτε ή διαφωνείτε με τις παρακάτω δηλώσεις:**
    (1=Διαφωνώ απόλυτα, 5=Συμφωνώ απόλυτα)

Δήλωση	1 Διαφωνώ απόλυτα	2	3 Ούτε διαφωνώ, ούτε συμφωνώ	4	5 Συμφωνώ απόλυτα
Το να βοηθάω τους ασθενείς μου να διακόψουν το κάπνισμα, είναι ένα σημαντικό μέρος της δουλειάς μου ως γιατρός:	☐	☐	☐	☐	☐
Οι γιατροί θα πρέπει να συμβουλεύουν τους ασθενείς να διακόψουν το κάπνισμα, ακόμα και αν δεν είναι αυτός ο λόγος της επίσκεψής τους:	☐	☐	☐	☐	☐
Η συμβουλευτική από ένα γιατρό παρακινεί τους ασθενείς να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Οι γιατροί θα πρέπει να προγραμματίζουν ραντεβού αποκλειστικά για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Το κάπνισμα είναι μια προσωπική απόφαση που δεν αφορά τον γιατρό:	☐	☐	☐	☐	☐
Για πολλούς καπνιστές, το κάπνισμα αποτελεί εθισμό:	☐	☐	☐	☐	☐

	1	2	3	4	5
Το κάπνισμα σκοτώνει πολλούς Έλληνες:	☐	☐	☐	☐	☐
Η δύναμη της θέλησης των ασθενών και μόνο είναι ο παράγοντας που θα καθορίσει την επιτυχία της προσπάθειας για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Δεδομένης της οικονομικής κρίσης και του αντίκτυπου στο σύστημα υγείας, η πρόληψη είναι περισσότερο σημαντική:	☐	☐	☐	☐	☐
Οι φαρμακευτικές θεραπείες πρώτης γραμμής συμβάλλουν στην διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Οι φαρμακευτικές θεραπείες πρώτης γραμμής για την διακοπή του καπνίσματος, δεν είναι ασφαλείς και έχουν παρενέργειες που υπερισχύουν του οφέλους από την χρήση τους:	☐	☐	☐	☐	☐
Είναι συνήθης πρακτική να βοηθώ τους ασθενείς μου να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Έχω τις απαιτούμενες δεξιότητες για να βοηθήσω τους ασθενείς μου να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Οι ασθενείς μου ακολουθούν τις συμβουλές μου σχετικά με αλλαγές συμπεριφοράς:	☐	☐	☐	☐	☐
Οι καπνιστές ασθενείς μου, θέλουν να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Θεωρώ ότι δεν διαθέτω αποτελεσματικές μεθόδους, για να βοηθήσω τους ασθενείς μου να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Ξέρω που πρέπει να απευθυνθούν οι ασθενείς μου για να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐

Τους επόμενους 6-μήνες σχεδιάζω να...

Δήλωση	1 Διαφωνώ απόλυτα	2	3 Ούτε διαφωνώ, ούτε συμφωνώ	4	5 Συμφωνώ απόλυτα
Να συζητήσω το θέμα της χρήσης του καπνού με τους ασθενείς μου ως προτεραιότητα:	☐	☐	☐	☐	☐
Να καταγράψω την καπνιστική συνήθεια στο ιατρικό ιστορικό των ασθενών μου:	☐	☐	☐	☐	☐
Να προσφέρω την στήριξή μου σε όλους τους ασθενείς που προσπαθούν να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Να παρέχω σύντομη συμβουλευτική για την διακοπή του καπνίσματος (3-5 λεπτά):	☐	☐	☐	☐	☐

89

Να δώσω στους ασθενείς μου ενημερωτικό υλικό για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Να συζητήσω τις διαθέσιμες φαρμακευτικές αγωγές για την διακοπή του καπνίσματος με τους ασθενείς που καπνίζουν:	☐	☐	☐	☐	☐
Να συνταγογραφίσω φαρμακευτική αγωγή σε ασθενείς που είναι έτοιμοι να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Να προγραμματίσω ραντεβού αποκλειστικά για να αναπτύξω πλάνο διακοπής του καπνίσματος με τους ασθενείς μου:	☐	☐	☐	☐	☐
Να είμαι επίμονος/η στο να συζητώ το θέμα της χρήσης καπνού με τους ασθενείς μου, ακόμα και αν δεν είμαι αποτελεσματικός/η στην αρχή:	☐	☐	☐	☐	☐

13. Υπάρχουν διάφοροι λόγοι που μπορεί να περιορίζουν την δυνατότητα προσφοράς υπηρεσιών για την διακοπή του καπνίσματος. Παρακαλώ βαθμολογήστε την σημασία καθενός από τα παρακάτω, για το ιατρείο σας:
(1= Καθόλου σημαντικό, 4= Πολύ σημαντικό)

Προβλήματα	1 Καθόλου σημαντικό	2	3	4 Πολύ σημαντικό
Οι ασθενείς δεν ενδιαφέρονται:	☐	☐	☐	☐
Οι ασθενείς δεν ανταποκρίνονται:	☐	☐	☐	☐
Έλλειψη επίδρασης στους ασθενείς:	☐	☐	☐	☐
Έλλειψη χρόνου:	☐	☐	☐	☐
Έλλειψη ή απροσδιόριστη αποζημίωση:	☐	☐	☐	☐
Έλλειψη ενημερωτικού υλικού για τους ασθενείς:	☐	☐	☐	☐
Έλλειψη εκπαίδευσης:	☐	☐	☐	☐
Έλλειψη δομών για να απευθυνθούν οι ενδιαφερόμενοι προκειμένου να διακόψουν τα κάπνισμα:	☐	☐	☐	☐
Πολυπλοκότητα οδηγιών για την διακοπή του καπνίσματος:	☐	☐	☐	☐
Άλλα προβλήματα υγείας αποτελούν προτεραιότητα:	☐	☐	☐	☐
Άλλο, παρακαλώ προσδιορίστε:				

Σας ευχαριστούμε για τον χρόνο που διαθέσατε στην έρευνα. Εκτιμούμε πολύ την βοήθεια σας.

2. GPs Knowledge assessment questionnaire (Pre-post intervention)
ΑΞΙΟΛΟΓΗΣΗ ΓΝΩΣΕΩΝ ΣΥΜΜΕΤΕΧΟΝΤΩΝ (post)

ΚΩΔΙΚΟΣ ΙΑΤΡΟΥ #:_____

Είναι τα ηλεκτρονικά τσιγάρα αποτελεσματικά στην διακοπή καπνίσματος;
☐ Ναι ☐ Όχι ☐ Δεν ξέρω ☐ Κανείς δεν μπορεί να γνωρίζει

Είναι ασφαλές να καπνίζει όποιος χρησιμοποιεί θεραπεία υποκατάστασης της νικοτίνης;
☐ Ναι ☐ Όχι ☐ Δεν γνωρίζω

Ποια θεωρείτε ότι είναι η πιο αποτελεσματική θεραπεία, σε σχέση με τα ποσοστά διακοπής καπνίσματος;
☐ Επίθεμα νικοτίνης ☐ Τσίχλα νικοτίνης ☐ Βουπροπιόνη ☐ Βαρενικλίνη ☐ Συνδυασμός

Πόσο θεωρείτε ότι διαρκεί η έντονη επιθυμία για κάπνισμα (craving);
☐ 3-5 ημέρες ☐ 3-5 ώρες ☐ 3-5 λεπτά

Ποια θεωρείτε ότι είναι η πιο κοινή ανεπιθύμητη ενέργεια της βαρενικλίνης;
☐ Διαταραχή ύπνου ☐ Αύξηση βάρους ☐ Κατάθλιψη ☐ Ναυτία ☐ Καμία από τις παραπάνω

Ποιο είναι το ποσοστό των Ελλήνων που καπνίζουν;
☐ 20% ☐ 30% ☐ 40%

Οι άνθρωποι που διακόπτουν το κάπνισμα θα αισθάνονται λιγότερο, περισσότερο ή το ίδιο άγχος;
☐ Περισσότερο ☐ Λιγότερο ☐ Το ίδιο ☐ Δεν γνωρίζω

Είναι δυσκολότερο για τις γυναίκες που εγκυμονούν να διακόψουν το κάπνισμα;
☐ Ναι ☐ Όχι ☐ Δεν γνωρίζω

Ποια είναι η πιο κοινή αιτία που οι άνθρωποι αρχίζουν ξανά το κάπνισμα;
☐ Ευχαρίστηση ☐ Άγχος ☐ Δύναμη θέλησης ☐ Δεν γνωρίζω

Σε τι ποσοστό επηρεάζει η συμβουλή του ιατρού στην διακοπή καπνίσματος;
☐ 10% ☐ 20% ☐ 30% ☐ 40%

Οι θεραπείες υποκατάστασης νικοτίνης δεν ενδείκνυνται για ανθρώπους με καρδιαγγειακά προβλήματα.
☐ Σωστό ☐ Λάθος

Η νικοτίνη είναι το ίδιο εθιστική όπως άλλες ναρκωτικές ουσίες (π.χ. η ηρωίνη και η κοκαΐνη).
☐ Σωστό ☐ Λάθος

Τι ποσοστό των ανθρώπων καταφέρνουν να διακόψουν το κάπνισμα με σύντομη συμβουλευτική από τον ιατρό και χρήση φαρμακοθεραπείας;
☐ 5% ☐ 10% ☐ 15% ☐ 20% ☐ 30% ☐ 40% ☐ 50%

3. GPs questionnaire (post intervention – core training)

TiTAN CRETE
ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΣΥΜΜΕΤΕΧΟΝΤΩΝ ΙΑΤΡΩΝ Π.Φ.Υ.

Σύγχρονες πρακτικές:
Κατά τον περασμένο μήνα, πόσο συχνά…

Καπνιστική συνήθεια	1 Ποτέ	2 Μερικές φορές	3 Τις μισές φορές	4 Πολλές φορές	5 Πάντα
Ρωτήσατε τους ασθενείς σας εάν καπνίζουν:	☐	☐	☐	☐	☐
Καταγράψατε την καπνιστική συνήθεια στο ιατρικό ιστορικό ενός ασθενούς:	☐	☐	☐	☐	☐
Συμβουλεύσατε τους ασθενείς που καπνίζουν να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Παρείχατε σύντομη συμβουλευτική συνάντηση για την διακοπή του καπνίσματος (3-5 λεπτά):	☐	☐	☐	☐	☐
Δουλέψατε με τον/την ασθενή σας για να ορίσετε ημερομηνία διακοπής του καπνίσματος:	☐	☐	☐	☐	☐
Δώσατε στον/στην ασθενή σας ενημερωτικό υλικό για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Συζητήσατε τις διαθέσιμες φαρμακευτικές αγωγές για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Συνταγογραφίσατε φαρμακευτική αγωγή για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Προγραμματίσατε επανεξέταση ή τηλεφωνική επικοινωνία για να συζητήσετε για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐

12. Παρακαλώ υποδείξτε πόσο συμφωνείτε ή διαφωνείτε με τις παρακάτω δηλώσεις:
(1=Διαφωνώ απόλυτα, 5=Συμφωνώ απόλυτα)

Δήλωση	1 Διαφωνώ απόλυτα	2	3 Ούτε διαφωνώ, ούτε συμφωνώ	4	5 Συμφωνώ απόλυτα
Το να βοηθάω τους ασθενείς μου να διακόψουν το κάπνισμα, είναι ένα σημαντικό μέρος της δουλειάς μου ως γιατρός:	☐	☐	☐	☐	☐
Οι γιατροί θα πρέπει να συμβουλεύουν τους ασθενείς να διακόψουν το κάπνισμα, ακόμα και αν δεν είναι αυτός ο λόγος της επίσκεψης τους:	☐	☐	☐	☐	☐
Η συμβουλευτική από ένα γιατρό παρακινεί τους ασθενείς να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Οι γιατροί θα πρέπει να προγραμματίζουν ραντεβού αποκλειστικά για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Το κάπνισμα είναι μια προσωπική απόφαση που δεν αφορά τον γιατρό:	☐	☐	☐	☐	☐
Για πολλούς καπνιστές, το κάπνισμα αποτελεί εθισμό:	☐	☐	☐	☐	☐

	1	2	3	4	5
Το κάπνισμα σκοτώνει πολλούς Έλληνες:	☐	☐	☐	☐	☐
Η δύναμη της θέλησης των ασθενών και μόνο είναι ο παράγοντας που θα καθορίσει την επιτυχία της προσπάθειας για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Δεδομένης της οικονομικής κρίσης και του αντίκτυπου στο σύστημα υγείας, η πρόληψη είναι περισσότερο σημαντική:	☐	☐	☐	☐	☐
Οι φαρμακευτικές θεραπείες πρώτης γραμμής συμβάλλουν στην διακοπή του καπνίσματος	☐	☐	☐	☐	☐
Οι φαρμακευτικές θεραπείες πρώτης γραμμής για την διακοπή του καπνίσματος, δεν είναι ασφαλείς και έχουν παρενέργειες που υπερισχύουν του οφέλους από την χρήση τους:	☐	☐	☐	☐	☐
Είναι συνήθης πρακτική να βοηθώ τους ασθενείς μου να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Έχω τις απαιτούμενες δεξιότητες για να βοηθήσω τους ασθενείς μου να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Οι ασθενείς μου ακολουθούν τις συμβουλές μου σχετικά με αλλαγές συμπεριφοράς:	☐	☐	☐	☐	☐
Οι καπνιστές ασθενείς μου, θέλουν να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Θεωρώ ότι δεν διαθέτω αποτελεσματικές μεθόδους, για να βοηθήσω τους ασθενείς μου να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Ξέρω που πρέπει να απευθυνθούν οι ασθενείς μου για να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐

Τους επόμενους 6-μήνες σχεδιάζω να...

Δήλωση	1 Διαφωνώ απόλυτα	2	3 Ούτε διαφωνώ, ούτε συμφωνώ	4	5 Συμφωνώ απόλυτα
Να συζητήσω το θέμα της χρήσης του καπνού με τους ασθενείς μου ως προτεραιότητα:	☐	☐	☐	☐	☐
Να καταγράψω την καπνιστική συνήθεια στο ιατρικό ιστορικό των ασθενών μου:	☐	☐	☐	☐	☐
Να προσφέρω την στήριξή μου σε όλους τους ασθενείς που προσπαθούν να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Να παρέχω σύντομη συμβουλευτική για την διακοπή του καπνίσματος (3-5 λεπτά):	☐	☐	☐	☐	☐

Να δώσω στους ασθενείς μου ενημερωτικό υλικό για την διακοπή του καπνίσματος:	☐	☐	☐	☐	☐
Να συζητήσω τις διαθέσιμες φαρμακευτικές αγωγές για την διακοπή του καπνίσματος με τους ασθενείς που καπνίζουν:	☐	☐	☐	☐	☐
Να συνταγογραφίσω φαρμακευτική αγωγή σε ασθενείς που είναι έτοιμοι να διακόψουν το κάπνισμα:	☐	☐	☐	☐	☐
Να προγραμματίσω ραντεβού αποκλειστικά για να αναπτύξω πλάνο διακοπής του καπνίσματος με τους ασθενείς μου:	☐	☐	☐	☐	☐
Να είμαι επίμονος/η στο να συζητώ το θέμα της χρήσης καπνού με τους ασθενείς μου, ακόμα και αν δεν είμαι αποτελεσματικός/η στην αρχή:	☐	☐	☐	☐	☐

13. Υπάρχουν διάφοροι λόγοι που μπορεί να περιορίζουν την δυνατότητα προσφοράς υπηρεσιών για την διακοπή του καπνίσματος. Παρακαλώ βαθμολογήστε την σημασία καθενός από τα παρακάτω, για το ιατρείο σας:
(1= Καθόλου σημαντικό, 4= Πολύ σημαντικό)

Προβλήματα	1 Καθόλου σημαντικό	2	3	4 Πολύ σημαντικό
Οι ασθενείς δεν ενδιαφέρονται:	☐	☐	☐	☐
Οι ασθενείς δεν ανταποκρίνονται:	☐	☐	☐	☐
Έλλειψη επίδρασης στους ασθενείς:	☐	☐	☐	☐
Έλλειψη χρόνου:	☐	☐	☐	☐
Έλλειψη ή απροσδιόριστη αποζημίωση:	☐	☐	☐	☐
Έλλειψη ενημερωτικού υλικού για τους ασθενείς:	☐	☐	☐	☐
Έλλειψη εκπαίδευσης:	☐	☐	☐	☐
Έλλειψη δομών για να απευθυνθούν οι ενδιαφερόμενοι προκειμένου να διακόψουν τα κάπνισμα:	☐	☐	☐	☐
Πολυπλοκότητα οδηγιών για την διακοπή του καπνίσματος:	☐	☐	☐	☐
Άλλα προβλήματα υγείας αποτελούν προτεραιότητα:	☐	☐	☐	☐
Άλλο, παρακαλώ προσδιορίστε:				

Σας ευχαριστούμε για τον χρόνο που διαθέσατε στην έρευνα. Εκτιμούμε πολύ την βοήθεια σας.

4. Intervention evaluation form

ΑΞΙΟΛΟΓΗΣΗ ΕΚΠΑΙΔΕΥΣΗΣ ΓΕΝΙΚΩΝ ΙΑΤΡΩΝ ΤΟΥ ΠΡΟΓΡΑΜΜΑΤΟΣ TiTAN CRETE

ΚΩΔΙΚΟΣ ΙΑΤΡΟΥ #:_____

Γενικά, σε ποιο βαθμό η παρεχόμενη εκπαίδευση ανταποκρίθηκε στις προσδοκίες σας;

☐ Δεν ανταποκρίθηκε στις προσδοκίες μου
☐ Σε κάποιο βαθμό
☐ Σε μεγάλο βαθμό
☐ Ξεπέρασε τις προσδοκίες μου

Παρακαλώ εξηγήστε:
_____
_____
_____

Ποιο ήταν το πιο βοηθητικό στοιχείο της εκπαίδευσης και γιατί;
_____
_____
_____
_____

Ποιο ήταν το στοιχείο που θεωρείτε ότι έλειπε από την εκπαίδευση και γιατί?
_____
_____
_____
_____

Το υλικό που σας δόθηκε, σας βοήθησε να βελτιώσετε την καθημερινή κλινική πρακτική σχετικά με την διακοπή καπνίσματος;
_____
_____
_____
_____

Πως ήταν η μέχρι τώρα εμπειρία σας σχετικά με την προώθηση της διακοπής καπνίσματος στους ασθενείς σας; Υπάρχει κάποιο παράδειγμα που θα θέλατε να μοιραστείτε μαζί μας;
_____
_____
_____
_____
_____
_____
_____
_____
_____
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_____
_____
_____
_____
_____

5. Patients screening form

TiTAN CRETE
ΕΝΤΥΠΟ ΔΙΑΛΟΓΗΣ ΕΠΙΣΚΕΠΤΩΝ

Αγαπητέ επισκέπτη,

Το παρόν περιφερειακό ιατρείο συμμετέχει σε μια μελέτη η οποία έχει σχεδιαστεί, στο πλαίσιο της συνεργασίας του με την Κλινική Κοινωνικής και Οικογενειακής Ιατρικής του Πανεπιστημίου Κρήτης.

Η μελέτη θα αξιολογήσει την αποτελεσματικότητα των ιατρών να καθοδηγήσουν τους επισκέπτες των ιατρείων σε θέματα προαγωγής υγείας. Για τον λόγο αυτό, ζητάμε από τους επισκέπτες που πληρούν τα κριτήρια, να συμπληρώσουν ένα σύντομο ερωτηματολόγιο, μετά το τέλος του προγραμματισμένου ραντεβού τους με τον ιατρό. Η συμμετοχή σας είναι προαιρετική και οι απαντήσεις σας θα είναι εμπιστευτικές.

Για να μπορέσουμε να αξιολογήσουμε εάν είστε επιλέξιμος/η για την μελέτη, παρακαλώ απαντήστε στις παρακάτω ερωτήσεις:

Έχετε καπνίσει τις τελευταίες 7 ημέρες: Ναι ☐   Όχι ☐

Αν ναι, πόσα τσιγάρα καπνίζετε την ημέρα: _____

Ηλικία: _____ (έτη)

Θα επιθυμούσατε να συμμετέχετε στην μελέτη: Ναι ☐   Όχι ☐

Που Επιστρέφω Αυτή Την Φόρμα

Παρακαλώ επιστρέψτε την φόρμα στον υπεύθυνο της έρευνας, που βρίσκεται στην αίθουσα αναμονής. Αυτός θα σας παρέχει περισσότερες πληροφορίες για την συνέχεια της έρευνας.

6. Patients questionnaire

TiTAN CRETE
ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΕΠΙΣΚΕΠΤΗ ΥΠΗΡΕΣΙΩΝ ΥΓΕΙΑΣ

Η συμμετοχή σας στην έρευνα θα διαρκέσει 5 λεπτά. Όλες οι απαντήσεις σας θα παραμείνουν απόρρητες. Εκτιμούμε την ειλικρίνεια σας κατά την συμπλήρωση του ερωτηματολογίου.

Παρακαλώ απευθυνθείτε στον υπεύθυνο της έρευνας για τυχόν ερωτήσεις ή διευκρινίσεις κατά την συμπλήρωση του ερωτηματολογίου.

Σας ευχαριστούμε πολύ για την πολύτιμη βοήθεια σας

Κοινωνικο-δημογραφικά χαρακτηριστικά

Ηλικία: _____ χρόνων   **Φύλο:** Άνδρας ◯   Γυναίκα ◯

Κατά μέσο όρο, πόσα τσιγάρα καπνίζετε ημερησίως: _____ τσιγάρα/ημέρα ή _____ τσιγάρα/μήνα

Πόσα χρόνια καπνίζετε: _____ χρόνια

Πόσο σύντομα αφότου ξυπνήσετε, καπνίζετε το πρώτο σας τσιγάρο:
Μετά από 60 λεπτά ◯   31-60 λεπτά ◯   6-30 λεπτά ◯   σε διάστημα 5 λεπτών ◯

Πόσες απόπειρες να διακόψετε το κάπνισμα (διάρκειας >24 ώρες) έχετε κάνει τον τελευταίο χρόνο:
Καμμία ◯   1-2 προσπάθειες ◯   3 ή περισσότερες προσπάθειες ◯

Καπνίζει κάποιος άλλος μέσα στο χώρο του σπιτιού σας: Ναι ◯   Όχι ◯

Καπνίζουν οι περισσότεροι άνθρωποι στην ζωή σας: (π.χ. φίλοι ή οικογένεια)
Όλοι ◯   Οι περισσότεροι ◯   Μερικοί ◯   Κανένας ◯

Είστε εκτεθειμένοι στο κάπνισμα άλλων, (παθητικό κάπνισμα), στον χώρο του σπιτιού σας ή σε άλλο μέρος όπου περνάτε μεγάλο μέρος του χρόνου σας: Ναι ◯   Όχι ◯

Ποια από τις παρακάτω φράσεις σας εκφράζει περισσότερο: (μια επιλογή)
◯ Θα ήθελα να διακόψω το κάπνισμα στις επόμενες 30 ημέρες
◯ Θα ήθελα να διακόψω το κάπνισμα στους επόμενους 6 μήνες
◯ Δεν σκοπεύω να διακόψω το κάπνισμα στους επόμενους 6 μήνες

TiTAN CRETE
ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΕΠΙΣΚΕΠΤΗ ΥΠΗΡΕΣΙΩΝ ΥΓΕΙΑΣ

Ποια από τις παρακάτω φράσεις σας εκφράζει περισσότερο: (μία επιλογή)

☐ Δεν θέλω να σταματήσω να καπνίζω

☐ Πιστεύω ότι πρέπει να διακόψω το κάπνισμα αλλά δεν θέλω

☐ Θέλω να διακόψω το κάπνισμα αλλά δεν το έχω σκεφτεί πότε

☐ Θέλω ΠΡΑΓΜΑΤΙΚΑ να διακόψω το κάπνισμα αλλά δεν ξέρω πότε θα το κάνω

☐ Θέλω να διακόψω το κάπνισμα και ελπίζω να το κάνω σύντομα

☐ Θέλω ΠΡΑΓΜΑΤΙΚΑ να διακόψω το κάπνισμα και σκοπεύω να το κάνω στους επόμενους 3 μήνες

☐ Θέλω ΠΡΑΓΜΑΤΙΚΑ να διακόψω το κάπνισμα και σκοπεύω να το κάνω τον επόμενο μήνα

Ποια βαθμίδα εκπαίδευσης έχετε τελειώσει:

Δημοτικό ☐   Γυμνάσιο ☐   Λύκειο ☐   Ανώτερη ή Ανώτατη ☐

Ποια είναι η εθνικότητα σας:

☐ Ελληνική

☐ Άλλη (Παρακαλώ αναφέρετε την εθνικότητα σας): _____

Ποιο είναι το επάγγελμα σας: _____

Αντιμετωπίζετε αυτή την στιγμή ή κατά το παρελθόν κάποιο/α από τα ακόλουθα προβλήματα υγείας...

Προβλήματα Υγείας	Ναι	Όχι	Δεν γνωρίζω
Καρδιακή νόσο, εγκεφαλικό επεισόδιο, καρδιακή ανεπάρκεια:	☐	☐	☐
Καρκίνο:	☐	☐	☐
Χρόνια αποφρακτική πνευμονοπάθεια:	☐	☐	☐
Διαβήτη:	☐	☐	☐
Άγχος ή κατάθλιψη:	☐	☐	☐
Άλλες καταστάσεις ψυχικής υγείας:	☐	☐	☐

TiTAN CRETE
ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΕΠΙΣΚΕΠΤΗ ΥΠΗΡΕΣΙΩΝ ΥΓΕΙΑΣ

Κατά τις 2 τελευταίες εβδομάδες, πόσο συχνά σας ενόχλησαν οι παρακάτω καταστάσεις (Κυκλώστε την απάντηση σας):

Προβλήματα	Καθόλου	Κάποιες μέρες	Πάνω από τις μισές μέρες	Σχεδόν κάθε μέρα
1. Αισθάνομαι νευρικότητα, άγχος ή υπερένταση	1	2	3	4
2. Αισθάνομαι ανικανότητα να σταματήσω ή να ελέγξω την ανησυχία μου	1	2	3	4
3. Αισθάνομαι λίγο ενδιαφέρον ή ευχαρίστηση κάνοντας πράγματα	1	2	3	4
4. Αισθάνομαι υποτονικά, καταθλιπτικά, απελπιστικά	1	2	3	4

Στοιχεία για την σημερινή σας επίσκεψη στο ιατρείο

Ποιος είναι ο σκοπός της επίσκεψης σας στο ιατρείο σήμερα:

- ☐ Ιατρική επίσκεψη
- ☐ Συνταγογράφηση
- ☐ Άλλος: _____

Κατά την διάρκεια της ΣΗΜΕΡΙΝΗΣ σας επίσκεψης στο ιατρείο, ο ιατρός ή άλλος εργαζόμενος, σας…

Ερώτηση	Ναι	Όχι	Δεν γνωρίζω
Ρώτησε εάν καπνίζετε:	☐	☐	☐
Συμβούλευσε να διακόψετε το κάπνισμα:	☐	☐	☐
Ενημέρωσε για τις επιπτώσεις του καπνίσματος στην υγεία σας:	☐	☐	☐
Προσέφερε την βοήθεια του για να διακόψετε το κάπνισμα:	☐	☐	☐
Δούλεψε μαζί σας για να ορίσετε μια ημερομηνία για να διακόψετε το κάπνισμα:	☐	☐	☐
Συζήτησε μαζί σας τις διαθέσιμες φαρμακευτικές αγωγές που θα σας βοηθήσουν να διακόψετε το κάπνισμα:	☐	☐	☐
Συνταγογράφισε κάποια φαρμακευτική αγωγή για να διακόψετε το κάπνισμα:	☐	☐	☐
Έδωσε ενημερωτικό υλικό που αφορά στην διακοπή του καπνίσματος:	☐	☐	☐
Προγραμμάτισε επόμενο ραντεβού για να συζητήσετε για το κάπνισμα:	☐	☐	☐

Σχετικά με τις επισκέψεις σας στο ιατρείο τον περασμενο χρονο

Κατά την διάρκεια των επισκέψεων σας στο ιατρείο κατά τον περασμένο χρόνο, ο ιατρός σας…

Ερώτηση	Ναι	Όχι	Δεν γνωρίζω
Ρώτησε εάν καπνίζετε:	☐	☐	☐
Συμβούλευσε να διακόψετε το κάπνισμα:	☐	☐	☐
Ενημέρωσε για τις επιπτώσεις του καπνίσματος στην υγεία σας:	☐	☐	☐
Προσέφερε την βοήθεια του για να διακόψετε το κάπνισμα:	☐	☐	☐
Δούλεψε μαζί σας για να ορίσετε μια ημερομηνία για να διακόψετε το κάπνισμα:	☐	☐	☐
Συζήτησε μαζί σας τις διαθέσιμες φαρμακευτικές αγωγές που θα σας βοηθήσουν να διακόψετε το κάπνισμα:	☐	☐	☐
Συνταγογράφισε κάποια φαρμακευτική αγωγή για να διακόψετε το κάπνισμα:	☐	☐	☐
Έδωσε ενημερωτικό υλικό που αφορά την διακοπή του καπνίσματος:	☐	☐	☐
Προγραμμάτισε επόμενο ραντεβού για να συζητήσετε για το κάπνισμα:	☐	☐	☐

Σε μια κλίμακα από το 1 έως το 10, πόσο σημαντικό είναι για εσάς να διακόψετε το κάπνισμα αυτή την στιγμή; (1=καθόλου σημαντικό, 10=εξαιρετικά σημαντικό). **Βάλτε σε κύκλο την απάντηση σας:**

1 2 3 4 5 6 7 8 9 10

Σε μια κλίμακα από το 1 έως το 10, πόσο σίγουρος/η είστε ότι θα καταφέρετε να διακόψετε το κάπνισμα αυτή τη στιγμή; (1=καθόλου σίγουρος/η, 10=εξαιρετικά σίγουρος/η). **Βάλτε σε κύκλο την απάντηση σας:**

1 2 3 4 5 6 7 8 9 10

100

Πόσο σημαντική είναι η συμβουλή του γιατρού σας, ώστε να σας παρακινήσει να κόψετε το κάπνισμα:

☐ Πολύ σημαντική
☐ Σημαντική
☐ Κάπως σημαντική
☐ Καθόλου σημαντική

Πόσο ευχαριστημένος/η είστε από την στήριξη που σας παρασχέθηκε σήμερα στο ιατρείο, για την διακοπή του καπνίσματος:

☐ Πολύ ευχαριστημένος/η
☐ Ευχαριστημένος/η
☐ Κάπως ευχαριστημένος/η
☐ Καθόλου ευχαριστημένος/η

Σας ευχαριστούμε πολύ για τον χρόνο που αφιερώσατε για να συμμετέχετε σε αυτή την έρευνα. Παρακαλώ επιστρέψτε το ερωτηματολόγιο στον υπεύθυνο της έρευνας.

Καλή σας μέρα!

Publications

Publication #1

Study Protocol_____

Tobacco treatment TrAining Network in Crete (TiTAN-Crete): protocol for a controlled before-after study

Charis Girvalaki[a], Sophia Papadakis[a,b,c], Constantine Vardavas [a], Andrew Pipe[b,c], Christos Lionis[a],

ABSTRACT

INTRODUCTION Rates of tobacco use in Greece are among the highest in Europe and are responsible for an enormous burden of chronic disease and death. A large proportion of tobacco users report an interest in quitting. Family medicine practices have been identified as important settings for identifying tobacco users, delivering advice to quit smoking, and providing tobacco treatment interventions.

The 5A's (ask, advice, assess, assist, arrange) schema is an evidence-based model for addressing tobacco use in clinical settings. The rates at which primary care clinicians in Greece address tobacco use in their practice is unknown but, as in other countries, is understood to be sub-optimal. This paper describes the rationale, design, and protocol for a pre/post, controlled study to compare the effectiveness of a smoking cessation intervention delivered in primary care practices in Heraklion, Greece. The TiTAN-Crete intervention includes a 1-day tobacco treatment training program, dissemination of provider and patient resources and two booster training sessions. Participating providers and a cross-sectional sample of patients from their practices, will be surveyed. Outcome measures include changes in provider attitudes and beliefs, perceived behavioral control, intentions, and barriers related to smoking cessation treatment delivery.

Rates at which providers deliver tobacco treatment to patients will be measured by patient report of 5As delivery. Multi-level modeling will be used to examine the effects of the intervention. This study will lead to a better understanding of how to best assist clinicians in Greece to enhance the rates at which smoking cessation treatments are delivered to smokers.

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INTRODUCTION

Greece has one of the highest rates of tobacco use among members of the European Union (EU), estimated at slightly above 38% of the adult population[1]. In addition, high rates of tobacco addiction have been reported, with 53% of Greek tobacco users consuming more than 20 cigarettes per day, a rate that is also one of the highest in the EU[2, 3]. Tobacco use is responsible for an enormous burden of chronic disease and death[4]. Moreover, tobacco use places an extraordinary burden on the national health care system and is responsible for an estimated 200,000 hospital admissions (8.9% of the national total), with attributable hospital treatment costs calculated at over 554 million Euro, which represents 10.7% of the national hospital budget[5].

Family practice has been identified as an important setting for the delivery of smoking cessation treatment[6, 7]. General Practitioners (GPs) working in primary care are well positioned to identify and intervene with smokers[8]. The 5A's of smoking cessation are an internationally recognized evidence-based schema to guide interventions with tobacco users in clinical settings including primary care[9, 10]. The 5As include: ask patients about smoking status; provide brief quit smoking advice; assess readiness to quit smoking; assist patients with making a quit attempt using behavioral techniques and pharmacotherapies; and, arrange follow-up support throughout the quitting process. The rates at which primary care clinicians in Greece address tobacco use in their practice is unknown but, as in other countries, is understood to be sub-optimal [1, 11-13].

1

Study Protocol

Addressing barriers to the delivery of tobacco treatment including clinician knowledge, attitudes, skills, and time constraints is necessary to increase the uptake of tobacco treatment interventions in primary care settings[5, 14-17]. The 'Ottawa Model for Smoking Cessation' (OMSC), is a multi-component intervention for addressing tobacco use with smokers in primary care settings that is based on the 5A's model[11, 18, 19]. Evaluation of the OMSC program in Canadian primary care practices reveals a significant improvement in the rates at which evidence-based tobacco treatments are delivered in a large sample of primary care practices[11, 20]. The extent to which this model can be used to influence the practice behaviors of primary care clinicians in countries such as Greece is unknown. The primary objective of this study, therefore, was to test the effectiveness of an adaptation of the Ottawa Model among a sample of general practitioners in Greece in increasing provider knowledge, attitudes, confidence and rates of tobacco treatment delivery. In this paper, we describe the study rationale, design, methods, and protocol.

METHODS

Study Design

A pre-post, controlled study design will be employed. The study design schema is presented in Figure 1. From each of the participating practices, a cross-sectional sample of eligible tobacco users will be recruited before and after the 'Tobacco treatment TrAining Network in Crete' (TiTAN-Crete) intervention program is implemented to assess changes in the tobacco treatment outcomes of interest in both intervention and control practices. This trial received approval from the University Hospital of Heraklion Ethics Board (ref# 18078) and was registered at clinicaltrials.gov (identifier: ISRCTN10306198).

Figure 1: A before after, controlled study design
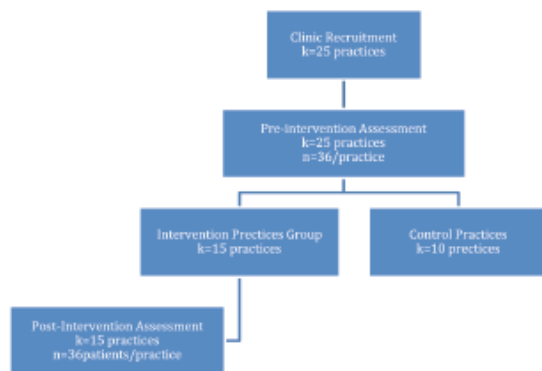
Figure 2: Conceptual model provider perspective
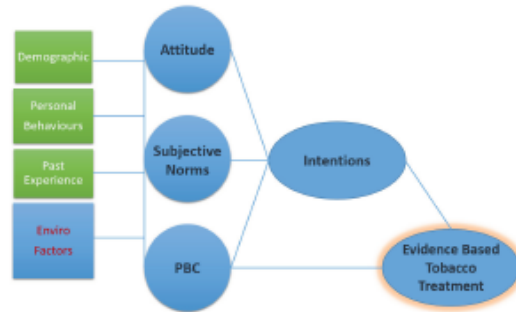
Setting and participants

The study will take place in the region of Heraklion, Crete, Greece. Primary care clinics within the Practice Based Research Network, a primary care provider group affiliated with the Clinic of Social and Family Medicine at the University of Crete will be exposed to the intervention program. A sample of control primary care practices will be recruited from the city of Rethymno (Crete, Greece); they will not be exposed to the intervention. A two-level recruitment strategy will be employed in which primary care providers will be recruited and then, from each provider's practice, a cross-sectional sample of eligible patients will be recruited before and after the intervention program.

Intervention Framework

The intervention program seeks to change behavior of both the providers and in turn their patients who smoke. Ajzen's Theory of Planned Behavior (TPB) has been used to guide intervention design [21]. Figure 2 provides a schematic representation of the conceptual framework for delivery of evidence-based tobacco treatments by providers. We will employ several tactics, based on the TPB, within the multi-component intervention to enhance the program's uptake into practice. Specifically the intervention program will target: i) provider attitudes towards tobacco use and treatment; ii) the establishment of new social and clinical norms related to tobacco treatment in primary care practice settings (normative beliefs); iii) increasing providers' perceptions about the ease of delivering tobacco treatment (perceived behavioral control); and, iv) providers intentions to deliver 5As treatments to patients. TPB has been applied in previous evaluations of smoking cessation interventions[22].

Intervention Comparators

TiTAN Crete Intervention Program

The TiTAN Crete program has adapted the existing curricula and resources originally developed at the University of Ottawa

Study Protocol

Heart Institute and which are specific to primary practice settings[20]. To facilitate maximum uptake the intervention program was adapted to reflect: language; cultural appropriateness; local patient beliefs and attitudes regarding tobacco-use and cessation; local social and clinical norms; provider perceptions surrounding 5As delivery; and practice characteristics. The TiTAN-Crete intervention includes a 1-day tobacco treatment training program for general practitioners, and the dissemination of provider and patient resources.

Provider Training

The training program consists of a one-day core session addressing tobacco use with patients in the context of a busy primary care practice setting. The training includes information regarding: the neuro-biology of nicotine addiction; health effects of tobacco use; the role of primary care providers in motivating cessation; evidence-based tobacco treatment practices; techniques for delivering brief cessation advice; the use of first-line cessation pharmacotherapy; motivational interviewing techniques; and special populations. Two booster 3-hour sessions will be delivered 1- and 3-months after the core training. The booster sessions are designed to reinforce the adoption of new practice behaviors and offer practical skills-based training focused on patients in the GP's own practice. Booster session #1 will focus on conducting initial and follow-up smoking cessation visits for patients ready to quit. Booster session #2 will focus on cognitive behavioral counseling techniques. The curriculum design was designed to be 2/3 theory and 1/3 practical. The program employs teaching techniques including role-play and case-study approaches known to enhance practice change. Local faculty and international faculty will deliver the training curriculum.

Patient and Provider Tools

Provider and patient tools were translated and adapted for use in primary care settings in Greece. A tool kit of resources will be distributed to providers which includes: patient tobacco use survey, provider consult form, provider medication reference sheet, patient quit plan booklet, and waiting room posters. The provider consult form used a checklist style set-up and provides real-time reminders for conducting an initial smoking cessation visit and follow-up appointments. The TiTAN Crete tools are available online at www.titan.uoc.gr

Control Group

Primary care providers in the control group will not be exposed to the intervention program.

Procedures

Clinician recruitment

An invitation letter will be sent to both intervention and control group practices explaining the objectives of the study and the study methods. A follow-up phone call/visit will be made to providers by a member of the investigative team one week after the invitation was sent to confirm interest in participation. An investigator will participate in one of the GP's monthly meetings to review the study protocol, consent forms and answer any questions. All GPs who agree to participate will complete an information sheet, consent form and a baseline survey. The provider survey will be repeated in intervention practices four months after the start of the program.

Pre Intervention Data Collection

Consecutive patients will be screened for eligibility in the waiting rooms of all participating GP offices. Screening for eligibility will be performed using a simple screening form. In order to be eligible to participate patients need to be: 18 years of age or older; current tobacco users (>5 cigarette per day on most days of the week); seen in clinic for a non-urgent medical visit; and, able to read and understand Greek. Eligible patients who agree to participate in the study will provide informed consent and at the end of their clinic appointment will then be asked to complete the study survey. The survey will collect information about both outcome and predictor variables.

Post Intervention Data Collection

The methods described in the pre-assessment will be repeated 4-months following the implementation of the intervention program to assess changes in the outcomes of interest. This will include repeating the provider survey and the data collection from a second cross-sectional sample of patients in all intervention practices.

Outcome Measurement

Provider Knowledge, Attitudes, Subjective Norms

Knowledge (6-items), attitudes (6-items), subjective norms (4-items), and perceived behavioral control (6-items), and intentions (6-items) regarding the treatment of tobacco use will be assessed by survey at the pre- and post-assessment with all providers. The survey instrument was developed based on previous research that examined the behavioral factors most closely associated with tobacco treatment delivery and uses a 5-point Likert scale (strongly agree to strongly disagree)[22, 23].

Barriers

Provider's barriers to the delivery of tobacco treatment

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(10-items) will be assessed. A 4-point Likert scale will be used to rate the importance of each of the barriers to the providers' practice (0 = not at all important, 3 = very important). Barriers to be assessed include: disinterest in quitting; patients do not comply; lack of impact on patients; lack of time; lack of/ insufficient reimbursement; lack of patient education material; lack of training; lack of community resources to refer patients; complexity of smoking cessation guidelines; and, the perceived priority of other health problems.

Provider Performance in the Delivery of Cessation Treatments
Performance in the delivery of each of the 5As (ask, advice, assess, assist, arrange) will be assessed using an exit survey. The survey will instruct participants to respond either "yes", "no" or "don't know" when asked whether their provider asked them about their smoking status (ask); advised them to quit smoking (advise); assessed their readiness to quit (assess); provided assistance with quitting (assist); prescribed pharmacotherapy, provided self-help materials, and arranged follow-up support (arrange). Exit interviews or surveys have been used to assess 5As delivery in several primary care trials[11, 22].

Predictor Variables
Practice, provider and patient level variables will be assessed and are described here.

Practice level variables
Geographic location of clinic (postal code, rural/suburban); number of providers in practice, availability of allied health professional support.

Provider level variables
Socio-demographic (age, gender); number of years practicing medicine, Professional training (physician, nurse etc.), previous cessation training) will be assessed.

Patient level variables
Age, sex, ethnicity, years of formal education, occupation, income, and postal code will be documented. The presence of smoking-related illness will be documented using patient self-report including heart disease, stroke, chronic obstructive pulmonary disease, and cancer. The 4-item Patient Health Questionnaire (PHQ) is a diagnostic tool for mental health disorders used by health care professionals and can be completed quickly and easily[24]. The PHQ has been translated into Greek and validated for use[25]. The validation study among Greeks, found that overall the PHQ subscales demonstrated good psychometric properties, with the exception of the subscale examining problematic alcohol use. The two-item

Heaviness of Smoking Index (HSI) will be used to assess the degree of nicotine dependence. The HSI is a short form of the Fagerstrom Test of Nicotine Dependence. The HSI has been validated against other, 'gold-standard' tests of nicotine dependence[26]. The HSI score can range from 0 to 6 and is calculated by summing the number of cigarettes smoked daily and the time, in minutes, to first cigarette after waking. Higher HSI scores reflect greater tobacco use dependence. Smoking history will be assessed by documenting the number of years a participant has been smoking. The number of past quit attempts (lasting 24 hours or longer) in the past year will be documented).

Theory of Planned Behaviour Constructs
Patient attitudes ("How important is it for you to quit smoking?"), norms (Do others smoke in your home? Do most of your friends smoke? Do most of your colleagues at work smoke? How important is your physicians advise to quit smoking?), and perceived behavioural control (How confident are you that you can quit smoking?) will be assessed.

Motivation to Stop Smoking
The Motivation to Stop Smoking Scale will be used to assess a participant's motivation to quit[27]. This single item tool asks respondents: "Which of the following describes you?" Response options are: (1) "I don't want to stop smoking"; (2) "I think I should stop smoking but don't really want to"; (3) "I want to stop smoking but haven't thought about when"; (4) "I REALLY want to stop smoking but I don't know when I will"; (5) "I want to stop smoking and hope to soon"; (6) "I REALLY want to stop smoking and intend to in the next 3 months"; (7) "I REALLY want to stop smoking and intend to in the next month".

Bio-statistical considerations
Sample size and power calculation
Power calculations were based on rates of provider delivery of tobacco treatment 'advice'. Given the clustered design an inflation factor was used to enlarge the total sample size to account for loss in statistical power. Based on estimates generated from previous research we have estimated that the ICC will be 0.01[11, 20]. We have estimated rates of provider 'advice' will be 45% in the Control Group, 60% in the Intervention Group. The control group rate was estimated based on a previous sampling of primary care practices in Greece[12]. We have assumed the effect in the current project to be 15% based on rates achieved based on previous research[11]. The sample size calculation, based on 25 practices (15

intervention practices and 10 control practices), indicates 28 patients per practice. All calculations were based on a two-sided test, with 90% power, and an alpha level of 0.05. We have increased sample size to account for possible loss to follow-up among providers. A total of 36 patients will be sampled at each practice or clinic. Measurement will occur at two time-points in intervention practices (pre- and post-intervention). Measurement in the control practices will occur at only one time point. The total sample at the pre-assessment will be 900 (25 clinics x 36 patients/clinic). The patient sample at the post-assessment will be 540 patients (15 clinics x 36 patients/clinic).

Primary analysis

Clinic, provider and patient characteristics will be compared between groups using t-tests for continuous variables and Pearson chi-square tests for categorical variables. Multi-level modeling will be used to examine intervention effects controlling for provider and clinic level clustering. The effect of the intervention will be estimated using iterative generalized least squares method for binary data. To understand the patient- provider- and clinic-level factors associated with each outcome, separate multi-level logistic regression analyses will be performed using backward (Wald) stepwise selection to choose significant interaction terms at the 5% level after entering all the main effects in the model. Wald tests will be used to obtain p-values and odds ratios with 95% CI will be used to summarize the effect estimates.

DISCUSSION

In Greece, there are very high rates of tobacco use and tobacco-related disease. Engaging primary care practitioners to support patients with smoking cessation is of critical importance. Insufficient rates of evidence-based smoking cessation treatment delivery have been documented in primary care practice settings and are thus important targets for quality improvement initiatives. Developing intervention programs that address well-known barriers may increase rates of cessation delivery in primary care settings especially. Such interventions may be of particular significance given in the austerity conditions affecting Greece. These barriers include a lack of provider knowledge, attitudes, and confidence regarding tobacco treatment delivery, the lack of time in busy primary care practices, lack of organizational supports, and patient resistance[28]. The TiTAN-Crete program has been designed to address important barriers to tobacco treatment delivery in primary care.

Adaptation to local context is critical to successful knowledge

translation programs. In this project we have engaged local providers in the adaptation of validated, evidence-based model and will develop and support its rollout in daily clinical practice to increase uptake and efficacy. Baseline data collection activities for the TiTAN-Crete intervention program began in May 2015 and post-data collection activities will be completed in April 2016. This study will lead to a better understanding of how best to assist clinicians in Greece with enhancing the rates at which smoking cessation treatments are delivered to smokers. Lessons learned will be used to inform the further expansion of such interventions in Greece - and potentially other European primary care settings.

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Smoking cessation delivery by general practitioners in Crete, Greece

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Background: Tobacco dependence treatment in clinical settings is of prime public health importance, especially in Greece, a country experiencing one of the highest rates of tobacco use in Europe. **Methods:** Our study aimed to examine the characteristics of tobacco users and document rates of tobacco treatment delivery in general practice settings in Crete, Greece. A cross-sectional sample of patients ($n = 2, 261$) was screened for current tobacco use in 25 general practices in Crete, Greece in 2015/16. Current tobacco users completed a survey following their clinic appointment that collected information on patient characteristics and rates at which the primary care physician delivered tobacco treatment using the evidence-based 4 A's (Ask, Advise, Assist, Arrange) model during their medical appointment and over the previous 12-month period. Multi-level modeling was used to analyze data and examine predictors of 4 A's delivery. **Results:** Tobacco use prevalence was 38% among all patients screened. A total of 840 tobacco users completed the study survey [mean age 48.0 (SD 14.5) years, 57.6% male]. Approximately, half of the tobacco users reported their general practitioner 'asked' about their tobacco use and 'advised' them to quit smoking. Receiving 'assistance' with quitting (15.7%) and 'arranging' follow-up support (<3%) was infrequent. Patient education, presence of smoking-related illness, a positive screen for anxiety or depression and the type of medical appointment were associated with 4 A's delivery. **Conclusion:** Given the fundamental importance of addressing tobacco treatment, increasing the rates of 4 A's treatment in primary care settings in Greece is an important target for improving patient care.

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Introduction

Tobacco use is the leading cause of premature death and disability and the largest threat to public health in Europe.[1,2] Each year, more than 700 000 Europeans die from tobacco-related illness.[2] The World Health Organization's (WHO) European region has one of the highest proportions of death attributable to tobacco, with an estimated 16% of all deaths among adults over 30 years of age due to tobacco use.[1] Despite the decline in the prevalence of tobacco use, more than 125 million Europeans (26% of the population) continue to smoke, representing the highest rate of tobacco use among all the WHO regions.[3] Moreover, tobacco use imposes a huge economic burden on the European health care systems, with the direct health care costs alone estimated to be 100 billion Euros.[4,5]

There is overwhelming evidence attesting to the health and economic benefits of smoking cessation.[6] Quitting smoking reduces the excess risk of smoking-related coronary heart disease, for example, by approximately 50% within 1 year, and to normal levels within 5 years.[7] Smoking cessation is highly cost-effective with the cost per life-year saved estimated to be between ?1500 and ?3000.[8,9] Tobacco use is also a priority among young European due to the fact that 94% of smokers start smoking before the age of 25 years and quitting smoking as early in life substantially reduces future disease risk.[10]

General practices have been identified as important settings for the delivery of smoking cessation treatment.[1,4,11,12] The WHO[1] and the European Network For Smoking and Tobacco Prevention[13] have called for tobacco dependence to be a clinical priority of all health professionals.[1,13] The 5A's of smoking cessation are an internationally recognized evidence-based schema to guide interventions with tobacco users in all clinical settings including primary care.[13,14] The 5As include: 'ask' patients about smoking status; provide brief quit smoking 'advice'; 'assess' readiness to quit smoking; *'assist'* patients with making a quit attempt using behavioral techniques and pharmacotherapies; *and, 'arrange'* follow-up support throughout the quitting process. Internationally, and in Europe, a practice gap in rates of 5 As delivery in clinical settings has been documented.[15–17]

Greece has one of the highest rates of tobacco use among members of the European Union, estimated at 38% of the adult population.[3] Little is known about the characteristics of tobacco users and current rates of tobacco treatment delivery in primary care settings in Greece. As a consequence, this study sought to examine the characteristics of tobacco users visiting general practitioners (GPs) in Crete and to document the rates of tobacco treatment delivery. We also examined patient-, GP- and clinic-level predictors of tobacco treatment delivery.

Methods

Design and setting

Here, we report the cross sectional baseline data collected as part of the Global Bridges TiTAN Crete project. The purpose of the TiTAN Crete project (http://titan.uoc.gr/index_en.html) is to create a network of GPs trained in evidence-based smoking cessation treatments. Data collection took place in Crete, Greece between May 2015 and June 2016. GPs were surveyed and a cross-sectional sample of their patients was screened for current tobacco use. All

Table 1 Socio-demographic and tobacco-related characteristics of primary care patients sampled (*n* = 840) in Crete, Greece

Parameter	Response	Value
Age	Mean years (SD)	48.0 (14.5)
Sex	% Male	57.6%
Number of cigarettes (daily)	Mean years (SD)	21.1 (11.9)
Education (years)	0–6	21.7%
	7–9	20.1%
	10–12	30.1%
	12+	27.9%
Nationality	Greek	97.9%
Smoking-related illness[a]	Yes	18.8%
Depression[b]	Score of ≥ 3	6.9%
Anxiety[c]	Score of ≥ 3	15.5%
Cigarettes/day	<5	4.8%
	6–15	32.3%
	16–25	39.4%
	26–40	19.9%
	>40	3.7%
Time to first cigarette	After 60 mins	20.4%
	31–60 mins	14.3%
	6–30 mins	35.6%
	Within 5 mins	29.8%
HSI	High	20.6%
	Moderate	56.1%
	Low	23.3%
Years of smoking	0–2	1.2%
	3–9	7.9%
	10–19	23.6%
	20+	67.4%
Readiness to quit[d]	Next 30 days	24.2%
	Next 6-months	34.2%
	Not ready to quit	41.6%
Self-efficacy with quitting[e]	Low (≤7/10)	85.5%
	High (>7/10)	14.5%
Number of quit attempts in past year	0	61.4%
	1–2	32.5%
	3+	6.1%
Presence of Other smokers in the home	Yes	58.1%
Family/friends who smoke	None	4.2%
	Some	38.9%
	Most	52.6%
	All	4.3%
Perceived importance of quitting[f]	Low (≤7/10)	37.5%
	High (>7/10)	62.5%
Importance of doctor's advice to quit	Very important	21.4%
	Important	49.6%
	Somewhat important	18.6%
	Not at all important	10.4%

a: Self- Reported heart disease, stroke, heart failure/cancer/chronic obstructive pulmonary disease (COPD)? (1 = yes, 0 = no).
b: PHQ-4 for depression.
c: PHQ-4 for anxiety.
d: Which of the following best describes your feelings about smoking right now? (Responses: 1 = ready to quit in next 30 days, 0= ready to quit in next 6-months or not ready to quit).
e: On a scale of 1–10 how confident are you that you would be able to quit smoking at this time? (1 = not at all confident, 10 = extremely confident).
f: On a scale of 1–10 how important is it to you to quit smoking at this time? (Response: 1 = not at all important, 10 = extremely important.

CI 1.29, 3.27; *P* < 0.01), a positive screen for anxiety/depression (AOR 1.83; 95% CI 1.04, 3.23; *P* < 0.05) and who were seen in clinic for a medical examination or prescription. 'Assistance' with quitting was more frequently delivered to patients with a positive screen for anxiety or depression (AOR 4.67; 95% CI 2.23, 9.75; *P* < 00.1). Additionally a significant (*P* < 0.01) trend across age groups was seen in rates at which 'advise' was delivered; tobacco users of increasing age were advised to quit more frequently than

Table 2 Rates of 4 A's tobacco treatment among GPs at index visit and previous 12-months, in Crete, Greece

Parameter	% Index visit *n* = 752	% Previous 12-months *n* = 805	ICC	*P*-value ICC
Ask	55.7	63.2	0.494	0.006
Advise				
Quit smoking	50.3	58.3	0.422	0.006
Health hazards	32.1	46.4	0.292	0.007
Assist				
General assistance	11.1	15.7	0.459	0.024
Set quit date	4.4	3.5	0.687	0.195
Provide self-help material	2.7	5.7	0.431	0.172
Discuss medications	5.3	7.8	0.884	0.354
Prescribe medication	0.9	1.5	0.883	0.499
Arrange	2.8	2.5	0.688	0.296

ICC: intra-class correlation coefficient, describes variation in tobacco treatment among providers sampled and is measured on a scale from 0 to 1, with a value close to 0 indicating the clusters were all similar.
Intra-Provider ICC = provider variance/total variance.
P values: reports on significance level of the GP-level variation observed.

younger patients. 'Arranging' follow-up was significantly more likely to occur among patients who smoked more than 25 cigarettes per day (AOR 6.51; 95% CI 1.09, 38.85; *P* < 0.05) and who smoked their first cigarettes 30 mins or more after waking in the morning.

Discussion

Study main results and highlights from the literature

To our knowledge, this is the first study to report on the characteristics of tobacco users and rates of tobacco treatment delivery in primary care in Greece. Our study reveals a very high prevalence (38%) of smoking among patients seen in primary care. Tobacco users who participated in the present study reported high levels of readiness to quit, rated quitting as being of personal importance and identified their GP's advice to quit as an important source of influence. All of our findings highlight the opportunity to intervene more effectively with tobacco users identified in primary care settings.

Although, there is strong evidence,[11–14] to support the primary care setting as a key environment for providing smoking cessation and a framework exists to integrate smoking cessation treatment into daily clinical practice, our study documented that a large proportion of tobacco users did not receive 'advice' to quit from their primary health care GPs in the previous year. Moreover, while 'advice' to quit is delivered to approximately 58.3% of all tobacco users, less than 15.7% received any type of 'assistance' with quitting in the last year.[13,14,24]

Our study adds to a large body of existing international surveys which have documented a similar practice gap in the rates of tobacco treatment delivery in primary care settings.[14–16] Among the GPs sampled there was significant variability in the rates at which 'ask' and 'advise' was delivered. Providers in this study can be classified in three categories according to the rates of 'ask' and 'advise': high performers (>80% of patients received 'ask' and 'advice'), moderate performers (40–70%) and low performers (<30%). The source of this variation and approaches to supporting low and moderate performing GPs with increasing rates of tobacco treatment delivery are important topics for future research.

The profile of tobacco users identified in our study suggests a large proportion of patients are highly addicted, have high daily tobacco consumption rates, have other smokers in their home and report low levels of self-efficacy–all of which are factors known to be associated with difficulty with cessation.[25,26] The reported rate of

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Table 3 Final model for multi-level analysis of GPs and patient-level characteristics associated with rates of 4A's delivery in Crete, Greece

Parameter		Ask	Advise(quit smoking)	Advise(health hazards)	Assist	Arrange
GP-level variables						
Gender	Female			1.00		
	Male			2.88 (1.06, 7.86)*		
Patient-level variables						
Age	18–24 years				1.00	1.00
	25–39 years				0.24 (0.05, 1.26)	0.08 (0.01, 0.79)*
	40–54 years				1.40 (0.33, 5.93)	0.05 (0.01, 0.56)*
	55–64 years				1.59 (0.35, 7.24)	0.20 (0.02, 2.15)
	≥65 years				1.63 (0.36, 7.50)	0.06 (0.01, 0.70)*
Education	0–6		1.00	1.00		
	7–9		0.53 (0.31, 0.91)*	0.64 (0.36, 1.12)		
	10–12		0.43 (0.26, 0.72)**	0.47 (0.27, 0.80)**		
	12+		0.51 (0.30, 0.88)*	0.62 (0.35, 1.08)		
Smoking-related illness	No	1.00		1.00		
	Yes	2.07 (1.27, 3.37)**		2.05 (1.29, 3.27)**		
Anxiety, depression, or other mental illness	No			1.00	1.00	
	Yes			1.83 (1.04, 3.23)*	4.67 (2.23, 9.75)***	
Purpose of visit	Medical examination	1.00	1.00	1.00		
	Prescription	0.74 (0.49, 1.12)	1.02 (0.69, 1.51)	0.61 (0.41, 0.91)*		
	Other/missing	0.26 (0.15, 0.45)***	0.31 (0.18, 0.54)***	0.19 (0.10, 0.35)***		
Cigarettes/day	<15					1.00
	15–25					1.63 (0.35, 7.56)
	>25					6.51 (1.09, 38.85)*
Time to first cigarette in the morning	After 30 min					1.00
	Within 30 min					0.24 (0.07, 0.92)*
Random variance [a]						
	GP	3.022 (1.113)	2.208 (0.816)	1.231 (0.463)	2.996 (1.329)	

Models adjusted for GP-level clustering effects; CI, confidence interval. Ask: 25 GPs; 1= Asked (*n* = 419), 0= Not Asked (*n* = 333). Advise (quit smoking): 25 GPs; 1= Advised (*n* = 378), 0= Not Advised (*n* = 372). Advise (health hazards): 25 GPs; 1= Advised health hazards (*n* = 241), 0= Not advised health hazards (*n* = 509). Assist: 25 GPs; 1= Assisted (*n* = 83), 0= Not Assisted (*n* = 668). Arrange: 25 GPs; 1= Arranged follow-up visit (*n* = 21), 0= Not arranged follow-up visit (*n* = 730). *P*-values calculated based on Wald Tests; *P < 0.05; **P < 0.01; *** P < 0.001. Empty cells: not significant variable in the final model.

a: Random effects reflecting deviation of clinic k from the overall mean for the particular clinic effects.
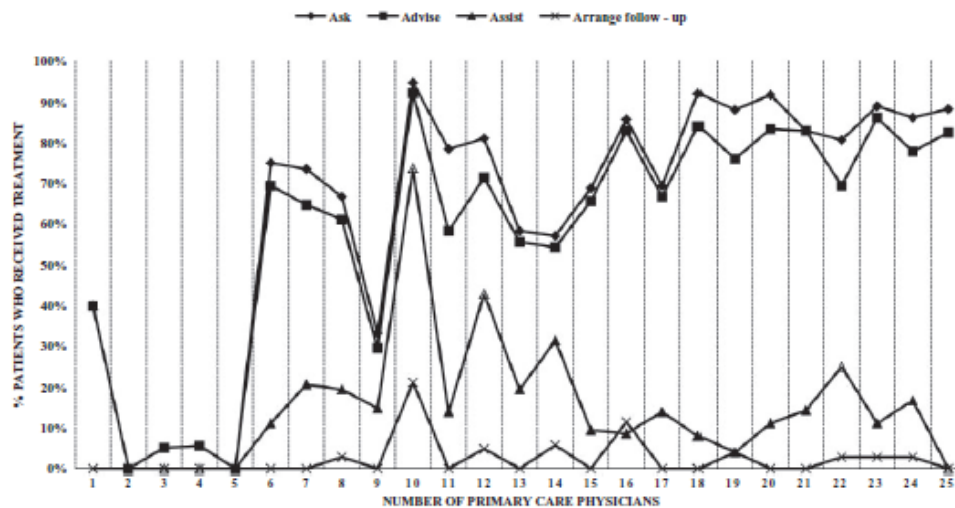
Figure 1 Rates of ask, advise, assist, arrange in previous 12-months by GPs sampled in Crete, Greece

cigarette consumption in our study was 21.1 cigarettes per day, significantly higher than the European average (14.4 cigarettes/day) and slightly higher than population rates reported for Greece in the most recent Eurobarometer survey.[3,27] These patients are more likely to benefit from formalized cessation assistance provided by trained clinicians employing evidence-based therapies such as pharmacotherapy and counseling. Importantly, more than half of participants in our study reported their readiness to quit smoking in the near future. This finding is similar to data from other studies.[28,29]

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European tobacco treatment guidelines have called for tobacco addiction to be given the same attention by clinicians as other chronic diseases and chronic disease risk factors such as hypertension, diabetes and cholesterol management.[13] These diseases are screened for regularly and treated aggressively using a combination of counseling and pharmacotherapy. Tobacco use has been described as unique in its prevalence, lethality and neglect.[14] It has not been given the same attention as other chronic diseases or risk factors by primary care clinicians. Lack of training in evidence-based tobacco treatment during undergraduate and post-graduate medical training, low levels of self-efficacy, work load, time pressure, as well as patient resistance are some of the most important factors which are known to limit the adoption of tobacco treatment by GPs.[14,30-32] Countries experiencing fiscal constraints have been found to report lower rates of smoking cessation advice.[22] A prime opportunity for intervention is to transform clinicians' knowledge and attitudes about the importance of addressing tobacco use and the important role they play in increasing their patient's motivation to quit smoking. Training in evidence-based tobacco treatment has been shown to increase rates of tobacco treatment.[11,33] In our study, only approximately one third of GPs had received training in smoking cessation in the past, highlighting the opportunity to enhance training in evidence-based tobacco treatment. Strong evidence demonstrates that multi-component interventions combining training and other physician and patient-level intervention strategies are the most effective method for increasing GP performance in the delivery of smoking cessation treatment and improving cessation rates among patients.[11] These cost-effective interventions are particularly important for a country affected by economic challenges.

Our study documented that several patient-level factors were associated with the frequency of 4A's delivery. Overall tobacco treatment advice is more frequently delivered to patients perceived to be at increased risk (i.e. have a smoking related illness), who suffer from anxiety or depression and who are older. Similar patterns have been previously reported.[34,35] Interestingly, individuals with grade school education or less were more likely to be advised to quit; a pattern also previously documented.[16,30] The rates of 4A's treatment were higher at appointments for medical examinations; these appointments may be longer in duration and thus provide more opportunity to discuss prevention, however, there is evidence to show that tobacco users are open to receiving advice to quit at other types of medical appointments in particular those during which acute symptoms are being experienced.[16] Importantly, clinical practice guidelines emphasize that tobacco treatment be delivered to all patients who smoke and not a sub-population of smokers or during specific visits.[13,14] There is strong evidence to show that quitting at a younger age increases life expectancy dramatically.[10,36]

Strengths and limitations

One quarter of GPs sampled were tobacco users themselves. It is known that a physician's personal tobacco use decreases the likelihood of tobacco treatment for patients in their practice.[37] Previous reports have identified tobacco use among clinicians in Greece and other European countries to be similar to that of the general population.[38,39] While our study did not find personal smoking cessation status was significantly associated with rates of tobacco treatment delivery this may be due to our sample size. Consideration should be given to supporting clinicians with quitting as a strategy for increasing rates of tobacco treatment delivery in their practice.

We had very high rates of participation among GPs and their patients, a factor that we attribute to the high regard given to University-based medical research in Greece. Limitations of our study should also be considered. It is unclear how GPs s sampled in our study are representative of those practicing in other parts of Greece and Europe. Our primary care providers were relatively young (<50-years), and primarily working in publically funded clinics (vs. private practice) in rural settings. Most providers were affiliated with the university practice based research network located on the island of Crete. The generalizability of our findings to the rest of Greece and/or southern Europe requires further investigation. It is also possible that an observation bias may have resulted in clinicians more consistently delivering tobacco treatment during the data collection period, resulting in higher rates of 4A's delivery being documented than normal. While patient-reported rates of 4A's delivery have been shown to be more accurate than physician self-report it is also possible that there may be some recall bias or over reporting by patients.[40] In the present study, we reported on 4 of the 5 As strategies. We did not enquire about the 'assess' strategy.

Conclusions

This study has identified an important practice gap in the delivery of evidence-based smoking cessation treatments in primary care in Greece. Increasing the rates of 5As tobacco treatment in primary care is an important target for quality improvement. Future research could examine the efficacy of training and practice-level interventions tailored to the unique profile of tobacco users and primary care providers in the Mediterranean and Eastern Europe and strategies for motivating patient not ready to quit, as well as cessation among health care providers.

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Supplementary data

Supplementary data are available at *EURPUB* online.

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Key points

- This is the first study to report on the characteristics of tobacco users and rates of tobacco treatment delivery in primary care practice settings in Greece.
- Our findings revealed a very high prevalence of smoking among patients identified in the primary care settings sampled as well as high rates of daily tobacco use and nicotine addiction.
- While approximately half of all tobacco users received advice to quit, assistance with quitting was infrequent.
- This study has identified an important practice gap in the delivery of evidence-based smoking cessation treatments in primary care practices in Greece.
- Increasing the rates of 5As tobacco treatment in primary care settings is an important target for quality improvement.

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Publication #3

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Training General Practitioners in Evidence-Based Tobacco Treatment: An Evaluation of the Tobacco Treatment Training Network in Crete (TiTAN-Crete) Intervention

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Abstract

Background. Rates of tobacco treatment delivery in primary care are suboptimal. *Aims.* We report on the effectiveness of the TiTAN Crete intervention on rates of patient-reported 4As (ask, advise, assist, arrange) tobacco treatment and general practitioner's (GP) knowledge, attitudes, self-efficacy, and intentions. *Methods.* A quasi-experimental pilot study with pre-post evaluation was conducted in Crete, Greece (2015-2016). GPs (*n* = 24) intervention and control group and a cross-sectional sample of their patients (*n* = 841) were surveyed before the implementation of the intervention. GPs in the intervention group received training, practice, and patient tools to support the integration of the 4As treatment into clinical routines. Intervention group GPs (*n* = 14) and a second cross-sectional sample of patients (*n* = 460) were surveyed 4 months following the intervention to assess changes in outcomes of interest. Multilevel modeling was used to analyze data. *Results.* Among GPs exposed to the intervention, significant increases in knowledge, self-efficacy, and rates of 4As delivery were documented between the pre- and postassessment and compared with those of the control group. Specifically, the adjusted odds ratios (AORs) and 95% confidence intervals (CIs) for 4As delivery between the pre-and postassessment among GPs exposed to the TiTAN intervention were as follows: Ask AOR 3.66 (95% CI [2.61, 5.14]); Advise AOR 4.21 (95% CI [3.02, 5.87]); Assist AOR 13.10 (95% CI [8.83, 19.42]) and Arrange AOR 4.75 (95% CI [2.67, 8.45]). *Conclusion.* We found significant increases in rates at which GPs delivered evidence-based tobacco treatment following exposure to the TiTAN intervention. Future research should examine methods for supporting broader dissemination of well-designed training interventions in general practice.

Keywords

evidence-based practice, general practice, Greece, primary health care, smoking cessation, translational medical research

Tobacco use is the leading cause of preventable morbidity and mortality in Europe (European Commission, 2017; World Health Organization, 2012). The World Health Organization and the European Network for Smoking and Tobacco Prevention (ENSP) Tobacco Treatment Guidelines have called for the integration of tobacco dependence treatment into daily clinical practice in primary health care (ENSP et al., 2017; World Health Organization, 2008). The 5As model is considered an evidence-based model for integrating tobacco dependence treatment into clinical settings and has been shown to increase quit attempts and cessation rates and consists of the following fundamental strategies: *Ask* all patients about their smoking status, *Advise* all patients who report tobacco use to quit smoking, *Assess* readiness to quit smoking, *Assist* with making a quit attempt, and *Arrange* follow-up support (ENSP et al., 2017; Fiore et al., 2008). Rates of tobacco treatment delivery however

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remain suboptimal in primary care settings in Europe (Everatt, Zolubiene, & Grassi, 2016; Jiménez-Ruiz et al., 2015; McEwen & West, 2001).

Twenty-six percent of Europeans currently smoke (European Commission, 2017), while southern European countries report very high rates of tobacco use. Greece, notably, has the highest rate of tobacco use in Europe (37.0% of the adult population), while Sweden has the lowest (7.0%) (European Commission, 2017). The number of cigarettes smoked per day is significantly higher among Greeks (17.8 cigarettes/day) compared with the European average (14.1 cigarettes/day) (European Commission, 2017). Greece also has one of the lowest percentages (12%) of smokers who report making a quit attempt in the past year, while only 1% of smokers report receiving quitting support from a health care professional (European Commission, 2017).

Addressing known barriers is necessary to increase the delivery of tobacco treatment interventions in primary care (Brotons et al., 2005; Patelarou et al., 2011; Pipe, Sorensen, & Read, 2009; Stead et al., 2009; Vogt, Hall, & Marteau, 2005). The importance of assessment and research of continuing medical education training programs in ensuring quality in training programs has also been acknowledged and can significantly affect professional competence, future clinical practice, and patient outcomes (Price, 2005; Shumway & Harden, 2003).

The "Ottawa Model for Smoking Cessation" (OMSC), is a multicomponent intervention for addressing tobacco use with smokers in primary care settings in Canada. Its evaluation has demonstrated significant improvements in the rates at which evidence-based tobacco treatment is delivered to patients (www.ottawaheart.ca) (Papadakis et al., 2013; Papadakis et al., 2016). The goal of TiTAN Crete was to adapt the OMSC program for use in primary care settings and to develop a network of trained general practitioners (GPs) in Crete, Greece, that would integrate treatment of tobacco dependence into daily clinical practice. This article reports on the effectiveness of TiTAN Crete intervention in increasing rates of patient-reported 4As (ask, advise, assist, arrange) tobacco treatment delivery. The secondary objectives of the study are to examine the effects of the intervention on GP knowledge, attitudes, self-efficacy, and intentions.

Method

Study Design

We conducted a quasi-experimental pilot study with pre-post evaluation, involving 24 GPs from Crete, Greece. This study received approval from the University Hospital of Heraklion Ethics Board (#18078) and was registered on ISRCTN (#10306198). The full study protocol has also been published (Girvalaki, Papadakis, Vardavas, Pipe, & Lionis, 2016). The intervention program was delivered at the level of the GPs. It was not possible to blind GPs to condition assignment; however, GPs were blind to the survey items included on the patient questionnaire. Patients were blinded to group assignment.

Setting and Participants

GPs (*n* = 14) from the Practice Based Research Network, affiliated with the Clinic of Social and Family Medicine at the University of Crete, were exposed to the intervention (http://www.fammed.uoc.gr/Joomla/index.php/clinic/services/research-network). From each GP's practice, a cross-sectional sample of eligible patients was recruited before (May-September 2015) and a different sample of patients after (March-May 2016) the intervention. A sample of primary care practices (*n* = 10) who were not exposed to the intervention was recruited from Rethymnon city and served as a control group (December-May 2016). Heraklion and Rethymnon are two neighboring cities of Crete geographically similar as they include mostly rural areas whose economy is mainly based on farming and agriculture. Although there are no available data on the smoking prevalence of the two cities, the profile we recorded appears to be representative of the broader population of smokers in Greece (European Commission, 2017). GPs in the control practices were assessed at only one time point due to restricted timeframe and limited financial resources. Data collection in the control group occurred following baseline data collection and prior to the postintervention assessment in the intervention group. It was assumed that no changes in outcomes would occur during the very short time period of the study.

Procedures

General Practitioner Recruitment and Data Collection. An invitation letter was sent to all GPs explaining the purpose and the procedures of the study. A follow-up phone call was made 1 week later to confirm interest. All GPs who agreed to participate provided written informed consent and completed a baseline survey. Apart from the baseline survey, GPs in the intervention group completed a follow-up survey at the end of the 1-day training session and 4 months after to assess changes in GP knowledge, attitudes, self-efficacy, and intentions. GP satisfaction with the TiTAN intervention was following the core training.

Patient Sampling. Consecutive patients were screened for eligibility in the waiting rooms of all participating GP practices. Eligible patients were 18 years of age or older, current smokers (≥1 cigarette per day), seen in practice for a nonurgent medical visit or prescription of their medication, and able to read/understand Greek. During the data collection sampling, the study research assistant was located in the clinic waiting room. Eligible patients who agreed to participate in the study provided written informed consent and

completed the demographic portion of the study survey before their appointment with the GPs via interview. They were asked to return after the appointment to answer questions regarding 4As tobacco treatment delivery during their clinic appointment on that day (i.e., index visit). This methodology was repeated approximately 4 months following the implementation of the TiTAN intervention program, in the intervention group of our study only, to recruit a second cross-sectional sample of patients. Patients who participated in the preintervention phase were excluded from the postintervention data collection.

Intervention Framework

Ajzen's theory of planned behavior was used to guide intervention design (Ajzen, 1991). Specifically, the intervention program aimed to influence rates of GP tobacco treatment delivery via a transformation of GP attitudes toward tobacco use and treatment (attitudes); the establishment of new social and clinical norms related to tobacco treatment in primary care practice settings (normative beliefs); increasing GPs' confidence in their ability to effectively deliver evidence-based tobacco treatment (perceived behavioral control also known as self-efficacy); and GPs' intentions to deliver tobacco treatment to patients (Girvalaki et al., 2016).

TiTAN Crete Intervention Program

The TiTAN intervention (www.titan.uoc.gr) was designed to reflect the local language, cultural norms related to tobacco use, the health system, and GPs' clinical practice routines in Greece. The intervention included a core 8-hour tobacco dependence treatment training program, booster training, and the dissemination of GP and patient resources. The training was tailored to provide knowledge and skills in order to support the integration of the 4As specifically into busy primary care practice settings. As per the intervention framework, the content of the training focussed on changing GPs' attitudes, beliefs, confidence, and intentions related to tobacco treatment delivery. The core training covered the health effects of smoking in Greece, the pathophysiology of nicotine addiction, the role of primary care in treating tobacco addiction, brief advise to quit, pharmacotherapy, motivational interviewing techniques, and special populations. Two mandatory 3-hour booster training sessions were delivered 1 and 3 months after the core training. During the booster training, content covered in the core training was reviewed, and more advanced topics were introduced including conducting an initial "Quit Plan" consultation and follow-up consultation, motivational interviewing skills, cognitive behavioural therapy, and use of the TiTAN tools. The booster sessions were designed to reinforce the adoption of new practice behaviors and to offer practical skills-based training focused on patients in the GP's own practice. The program employed active learning methods such as role-play and case-study approaches known to enhance skill and practice change and was delivered by a team of internationally recognized tobacco treatment experts (Mostofian, Ruban, Simunovic, & Bhandari, 2015).

A tool kit of resources was adapted for use in primary care settings in Greece and disseminated to GPs in the intervention group. The intervention tools were designed to (a) provide real-time prompts for evidence-based tobacco treatment delivery, (b) serve as teaching tools during patient interactions, and (c) assist with reducing the time required for consultation. These tools included a patient tobacco use survey, GP consult form, GP medication reference sheets, and patient quit plan booklet. The tools are available online at www.titan.uoc.gr.

Outcome Measures

For the evaluation of the outcome measures, the current study adapted the surveys previously tested from OMSC Program in Canada (Papadakis et al., 2015).

GP Performance in the Delivery of Cessation Treatments. The primary outcome measure was GP performance in the delivery of each of the 4As (ask, advise, assist, arrange). We did not enquire about the "assess" strategy in the present study to shorten the total length of the survey items and was considered less important than the other As in terms of the desired outcomes of the TiTAN intervention. 4As delivery was assessed via patient exit survey. Exit surveys have been used to assess tobacco treatment delivery in several primary care trials and are more reliable than GP self-report data (Pbert et al., 1999). The survey asked participants whether at the same day of practice appointment ("index visit") their GP asked them about their smoking status ("ask"), advised them to quit smoking ("advise–quit smoking"), advised them about the health hazards of tobacco use ("advise–health hazards"), provided assistance with quitting ("assist"), and arranged follow-up support ("arrange"). For the "assist," strategy participants were also asked if their GP provided self-help materials, set a quit date, and discussed or prescribed pharmacotherapy.

GP Satisfaction, Knowledge, Attitudes, Subjective Norms, Intentions. GP satisfaction (1 item), knowledge (13 items), subjective norms (2 items), attitudes (4 items), and self-efficacy/perceived behavioral control (1 item) and intentions (1 item) regarding the treatment of tobacco use were assessed by survey before and after the intervention program. All the individual items are presented in detail in Table 2.

Sample Size and Power Calculation

Power calculations were based on rates of GP tobacco treatment "advise." To account for the clustered nature of data, an

inflation factor was used to enlarge the total sample size to account for loss in statistical power. Based on estimates generated from previous research, we estimated that the intercluster correlation coefficient (ICC) would be 0.01, rate of GP "advise" would be 45% in the control group and intervention group at baseline and 60% in the intervention group following exposure to the intervention (Papadakis et al., 2013; Kotsoni, Antonakis, Markaki, & Lionis, 2008) All calculations were based on a two-sided test, with 90% power, and an alpha level of .05. Sample size calculations, based on 25 GPs (15 intervention and 10 control), indicated that 28 patients per participating GP were required. The sample size was increased to 36 per GP to account for possible loss to follow-up among GPs.

Statistical Analysis

Practice, GP, and patient characteristics were compared between time points (pre- and postintervention assessment) and between the TiTAN intervention and the control group to evaluate the effectiveness of the training program. We controlled for GP level variance when calculating p values. Multilevel modeling was used to examine intervention effects controlling for GP level clustering. We examined changes in outcomes of interest before and after exposure to the intervention program in the intervention group only. In a second analysis, we examined differences between the intervention and the control group. Given that differences were observed in rates of "assist" and "arrange" between intervention and control groups prior to exposure to the intervention, we adjusted for preintervention rates of "assist" and "arrange" in change models. Wald tests were used to obtain p values, and odds ratios with 95% confidence intervals (CIs) were used to summarize the effect estimates. Missing data were limited, with 2 of 14 providers in the intervention group not responding to posttraining survey. We did not replace for missing data in any of the analyses. Data were analyzed using SPSS and STATA.

Results

Recruitment Flow

The study flow diagram for the evaluation is presented in Figure 1. Twenty-four GPs contributed data to the study (14 intervention and 10 control). One GP in the intervention group withdrew from the study prior to data collection, and a second withdrew after the pre-intervention assessment was completed. These baseline data were removed from the analysis. A total of 984 patients (pre-intervention assessment $n = 524$, postintervention assessment $n = 460$) were sampled from intervention practices and 317 patients from control practices (98.3% of eligible patients screened).

GP and Patient Characteristics

GPs in the intervention and control group were similar in terms of their characteristics with the exception of more GPs being located in rural settings in the control group (Supplemental Table S1, available with the article online). GPs sampled were relatively young, 100.0% from the intervention group and 90.0% of the control group were younger than 50 years. Approximately one third of GPs reported participating in smoking cessation training in the past. Twenty percent of GPs in the control and 33.0% in the intervention group reported personal tobacco use.

The characteristics of smokers sampled are presented in Table 1. While no significant differences in demographic variables were observed, differences were documented for cigarettes smoked/day and time to first cigarette between the control and the intervention groups as well as between the cross-sectional samples of smokers surveyed at the pre-post assessment in the intervention group. We controlled for these differences in the final model.

General Practitioner Satisfaction, Knowledge, Self-Efficacy, Social Norms, and Intentions

High rates of satisfaction with the training program were documented from the majority (80.0%) of the GPs. Significant increases were documented in 6 of the 13 knowledge areas assessed between the pre–post intervention assessments. Favorable changes in the TiTAN intervention group were documented for attitudes; however, these were not statistically significant. A large and statistically significant increase in GP self-efficacy was documented between the pre- and postintervention assessment (14.3% vs. 64.3%; $p = .034$). A large increase in intentions to address tobacco use as a priority was also documented but was not statistically significant (42.9% vs. 71.4%; $p = .183$) (see Table 2).

Rates of 4As Tobacco Treatment Delivery

Comparison Between the Pre- and Postintervention Assessments in the TiTAN Group. Rates of delivery of the 4As in the intervention group increased significantly following implementation of the TiTAN program (see Table 3). Specifically, the adjusted odds ratios (AORs) and 95% CIs for 4As delivery were as follows: AOR Ask 3.66 (95% CI [2.61, 5.14]); AOR Advise 4.21 (95% CI [3.02, 5.87]); AOR Assist 13.10 (95% CI [8.83, 19.42]), and AOR Arrange 4.75 (95% CI [2.67, 8.45]).

Significant variability was observed in the change documented across GPs. For example, changes in rates of "advise" between the pre- and postassessments between providers ranged from 0.0% to 75.0% (see Supplemental Figure S1, available with the article online).
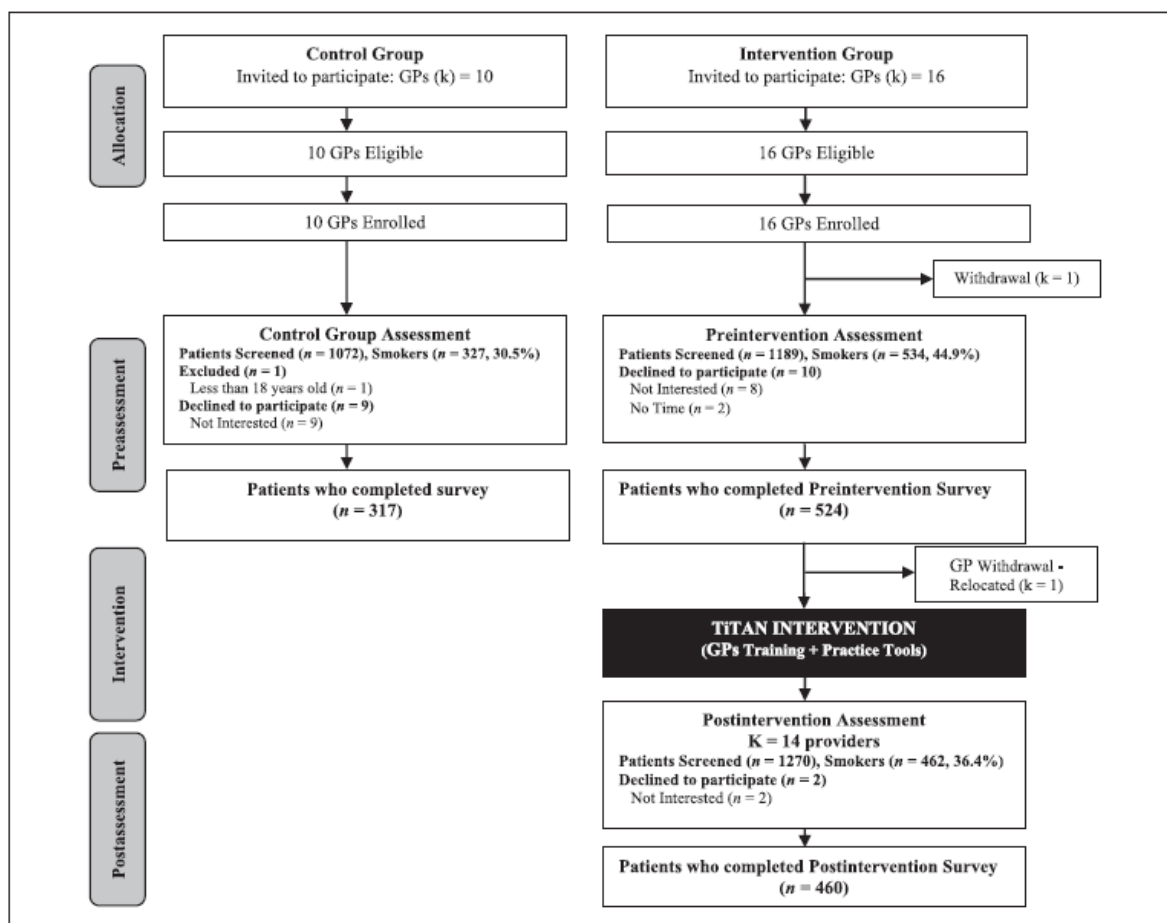
Figure 1. Recruitment flow diagram.
Note. GP = general practitioner.

Comparison Between the TiTAN Intervention and Control Groups

Baseline differences were documented between the intervention and control group for "assist" and "arrange" variables; therefore, we adjusted for preassessment rates in the analysis. The adjusted analysis documented significant differences between intervention and control group in all 4As; however, CI were wide for some (Table 4). The AOR for Ask was 4.12 (95% CI [1.31, 13.01]); AOR for Advise was 5.03 (95% CI [1.87, 13.56]); AOR for Assist was 18.24 (95% CI [18.24, 113.25]), and AOR for Arrange was 15.07 (95% CI [3.49, 65.12]).

Discussion

Main Results

This evaluation of the TiTAN intervention documented significant increases in GP knowledge, self-efficacy, and rates

at which GPs delivered evidence-based tobacco dependence treatment to their patients following the delivery of the program. Our study demonstrates that a training program and tools that are evidence based and employ principles derived from behavioral theory were effective in increasing rates of tobacco treatment delivery. Our training program tailored to the realities of GPs' clinical settings in Greece provided comprehensive knowledge and employed active learning techniques such as role-play and case study approaches, which successfully developed clinician skills.

At baseline, very low rates of GP knowledge and self-efficacy were documented supporting the need for formal training programs. TiTAN intervention group reported high rates of satisfaction with the training program and tools. The intervention was successful in increasing the intermediary outcomes that were targeted, including GP knowledge and self-efficacy. However, we did not see the expected changes in all attitudinal outcomes; this is an area that warrants further refinement and investigation. Importantly, even following training, we identified concerns among GPs sampled

Table 1. Smokers Demographics, Smoking Status, and Readiness to Quit in the TiTAN Intervention and the Control Group.

	Preintervention assessment			Postintervention assessment	
	Control (n = 317)	TiTAN (T1) (n = 524)	Control versus TiTAN (T1)	TiTAN (T2) (n = 460)	TiTAN (T1 vs. T2)
Parameter	n (%)	n (%)	p[a]	n (%)	p[a]
Age in years, M (SD)	49.0 (14.7)	47.5 (14.2)	.128	48 (13.1)	.094
Sex, male	172 (54.4)	312 (59.5)	.241	276 (60.0)	.894
Education					
Grade school	65 (20.7)	117 (22.3)	.774	94 (20.4)	.697
Junior high school	69 (22.0)	100 (19.1)		101 (22.0)	
High school	99 (31.5)	154 (29.4)		144 (31.3)	
College/university	81 (25.8)	153 (29.2)		121 (26.3)	
Nationality, Greek	307 (97.2)	515 (98.3)	.214	451 (98.0)	.783
Conditions					
Smoking-related illness[b]	62 (19.6)	96 (18.3)	.659	86 (18.7)	.924
Depression[c]	19 (6.0)	39 (7.4)	.491	24 (5.2)	.251
Anxiety[d]	52 (16.5)	78 (14.9)	.587	49 (10.7)	.141
Purpose of visit					
Medical examination	109 (34.5)	194 (37.0)	.942	245 (53.3)	.025
Prescription	122 (38.6)	193 (36.8)		157 (34.1)	
Other/missing	85 (26.9)	137 (26.2)		58 (12.6)	
No. of cigarettes/day					
<15	103 (32.6)	99 (18.9)	<.001	72 (15.7)	.296
15-20	135 (42.7)	248 (47.3)		245 (53.3)	
>20	78 (24.7)	177 (33.8)		143 (31.1)	
Time to first cigarette in the morning					
After 30 minutes	137 (43.4)	154 (29.4)	.002	105 (22.8)	.110
Within 30 minutes	179 (56.7)	370 (70.6)		355 (77.2)	
No. of smokers for N years					
0-2 years	4 (1.3)	6 (1.2)	.798	10 (2.2)	.060
3-9 years	23 (7.3)	43 (8.2)		22 (4.8)	
10-19 years	79 (25.0)	119 (22.7)		84 (18.3)	
20 + years	210 (66.5)	356 (67.9)		344 (74.8)	
Readiness to quit[e]					
Next 30 days	75 (23.7)	128 (24.5)	<.001	55 (12.0)	<.001
Next 6 months	81 (25.6)	206 (39.4)		249 (54.3)	
Not ready to quit	160 (50.6)	189 (36.1)		155 (33.8)	
Self-efficacy with quitting[f]					
Low (≤7/10)	264 (83.5)	454 (86.6)	.450	406 (88.3)	.617
High (>7/10)	52 (16.5)	70 (13.4)		54 (11.7)	

[a]Controlling for general practitioner–level clustering. [b]Do you have . . . heart disease, stroke, heart failure/cancer/chronic obstructive pulmonary disease (COPD)? (1 = *yes*, 0 = *no*). [c]Positive screen (score of 3 or more) on Patient Health Questionnaire (PHQ)-4 for Depression (Kroenke, Spitzer, Williams, & Löwe, 2009). [d]Positive screen (score of 3 or more) on PHQ-4 for Anxiety (Kroenke et al., 2009). [e]Which of the following best describes your feelings about smoking right now? (responses: 0 = *ready to quit in next 30 days*, 1 = *ready to quit in next 6 months or not ready to quit*, 2 = *not ready to quit*). [f]On a scale of 1 to 10, how confident are you that you would be able to quit smoking at this time? (1 = *not at all confident*, 10 = *extremely confident*). Scores of 8 or more indicated high self-efficacy (Boardman, Catley, Mayo, & Ahluwalia, 2005).

about the efficacy and safety of pharmacotherapy, which warrants further investigation, given the known safety and efficacy of these medications.

Comparison With Previous Literature

Our findings are consistent with previous evaluations of the OMSC program, which documented significant increases in tobacco treatment delivery with an average increase of 16.0% to 23.0% in 4As delivery (Papadakis et al., 2013; Papadakis et al., 2016). The present study documented larger improvements in rates of 4As delivery than those observed among Canadian GPs, which may reflect the lower baseline rates of 4As delivery. Others have recently reported on the value of well-designed training programs in influencing tobacco treatment outcomes in primary care settings in

Table 2. Changes in General Practitioners' Self-Reported Knowledge, Attitudes, Normative Beliefs, Perceived Behavioral Control, and Intentions at the pre- and postintervention Assessment in the TiTAN Group.

Variable	Pre (T1), n (%)	Post (T2), n (%)	T1 vs. T2, p
Knowledge			
Are electronic cigarettes effective in helping people quit smoking?[a]	5 (41.7)	5 (41.7)	1.00
Is it safe to continue to smoke while using nicotine replacement therapies?[a]	4 (33.3)	11 (91.7)	.009
Which are the most effective medications in terms of increase in success rates?[a]	12 (100.0)	12 (100.0)	1.00
How long does a craving typically last?[a]	8 (66.7)	11 (91.7)	.317
Which is the most common side effect of Varenicline?[a]	7 (58.3)	12 (100.0)	.037
What proportion of Greeks are smokers?[a]	7 (58.3)	9 (75.0)	.667
People who quit smoking will have more, less, or the same amount of stress?[a]	4 (33.3)	10 (83.3)	.036
Is it more difficult for women who are pregnant to quit smoking?[a]	2 (16.7)	10 (83.3)	.003
What are the most common reasons why people return to smoking?[a]	6 (50.0)	11 (91.7)	.025
A physician's advice to quit smoking can boost motivation to quit by what %?[a]	3 (27.3)	12 (100.0)	<.001
Nicotine replacement therapies are contraindicated for people with cardiovascular disease.[b]	5 (41.5)	5 (41.5)	1.00
Nicotine is as addictive as other drugs such as heroin or cocaine.[b]	9 (75.0)	10 (83.3)	.615
With brief counseling by a physician and use of pharmacotherapies, approximately how many people are expected to quit smoking?[a]	5 (41.7)	8 (66.7)	.414
Attitudes			
Counseling by a clinician helps motivate smokers to quit[c]	4 (28.6)	6 (42.9)	.482
For many tobacco users, smoking is an addiction[c]	10 (71.4)	13 (92.9)	.326
First-line pharmacotherapies for smoking cessation work well in helping patients quit[c]	4 (28.6)	6 (42.9)	.587
First-line pharmacotherapies for smoking cessation are not safe, have side effects that out weigh their benefits[d]	4 (28.6)	8 (57.1)	.228
Normative beliefs			
Smoking cessation is an important part of my role as a clinician[c]	12 (85.7)	13 (92.9)	.595
Clinicians should advise patients to quit smoking even if it's not the reason for their visit[c]	10 (71.4)	10 (71.4)	1.00
Perceived behavioral control			
I have the required skills to help my patients quit smoking[c]	2 (14.3)	9 (64.3)	.034
Intentions			
I intend to address tobacco use in all my patients as a priority[c]	6 (42.9)	10 (71.4)	.183

Note. The analyses summarized above and *p* values were calculated using a Pearson chi-square test. Boldfaced *p* values indicate statistical significance (*p* < .05). Knowledge: missing data *n* = 2.
[a]Knowledge assessment questions were multiple choice. We evaluated the number of the correct responses. In the question, "Which are the most effective medications in terms of increase in success rates?" there were two correct responses, so we counted as correct those with both responses chosen. [b]Knowledge was assessed by yes or no responses. [c]Attitudes, normative beliefs, perceived behavioral control, and intentions were assessed using a 5-point Likert-type scale (1 = *strongly disagree* 2= *disagree*, 3= *neutral*, 4= *agree*, 5= *strongly agree*). Strongly agree was evaluated in these questions. [d]Strongly disagree was evaluated in this question.

Europe (Olano-Espinosa et al., 2013; Verbiest et al., 2014). A cluster randomized controlled trial found that a 1-hour practice-tailored training for GPs significantly increased the frequency at which "ask" and "advise" was delivered to patients (Verbiest et al., 2014). Previous research has shown that real-time reminders, counselling prompts, and flow sheets are effective in influencing rates of cessation treatment by GPs (Boyle, Solberg, & Fiore, 2011; Papadakis et al., 2010). In the present study, we tailored these GP tools specifically to the local primary care context. The strategies employed were

Table 3. Performance in Tobacco Treatment Delivery for the Pre- and Postintervention Assessment Among General practitioners Exposed to the TiTAN Intervention.

4As delivery	Preassessment (T1), n (%)	Postassessment (T2), n (%)	Pre vs. post			
			Change (T2 − T1)	AOR [95% CI]	p	ICC
Ask	253 (58.0)	381 (82.8)	+24.8	3.66 [2.61, 5.14]	<.001	0.0845
Advise						
Quit smoking	229 (52.5)	375 (81.5)	+29.0	4.21 [3.02, 5.87]	<.001	0.0533
Health hazards	147 (33.7)	306 (66.7)	+33.0	4.17 [3.05, 5.71]	<.001	0.0921
Assist						
General assistance	70 (16.1)	298 (64.8)	+48.7	13.10 [8.83, 19.42]	<.001	0.1805
Set quit date	31 (7.1)	57 (12.4)	+5.3	2.23 [1.32, 3.75]	.0028	0.2791
Provide self-help materials	17 (3.9)	120 (26.1)	+22.2	9.32 [5.32, 16.35]	<.001	0.1878
Discuss quit smoking medications	33 (7.6)	152 (33.0)	+25.4	8.10 [5.06, 12.98]	<.001	0.0345
Prescribe quit smoking medications	7 (1.6)	25 (5.4)	+3.8	3.91 [1.64, 9.35]	.0022	0.1951
Arrange	18 (4.1)	70 (15.2)	+11.1	4.75 [2.67, 8.45]	<.001	0.2971

Note. AOR = adjusted odds ratio (adjusted for GP-level clustering); CI = confidence interval; ICC = intercluster correlation coefficient. 4As performance was reported by smokers whose doctors were in the intervention group of the study. Sample size: Preassessment *n* = 436; Postassessment *n* = 460. Higher values of ICC represent larger variation among individual providers.

Table 4. General Practitioners' Performance in 4As Delivery Following Exposure to the TiTAN Intervention Compared With That of the Control Group.

Parameter	Control (n = 317), n (%)	TiTAN (n = 460), n (%)	TiTAN vs. control	
			AOR [95% CI][a]	p[a]
Ask	166 (52.5)	381 (82.8)	4.12 [1.31, 13.0]	.0158
Advise: Quit smoking	149 (47.2)	375 (81.5)	5.03 [1.87, 13.6]	.0014
Advise: Health hazards	94 (29.8)	306 (66.8)	5.43 [2.94, 10.0]	<.001
Assist: General[c]	13 (4.1)	298 (64.8)	45.45 [18.24, 113.3]	<.001
Assist: Set quit date[c]	2 (0.6)	57 (12.6)	19.13 [3.57, 102.5]	.0006
Assist: Self-help materials[c]	3 (0.9)	120 (26.1)	37.51 [9.27, 151.8]	<.0001
Assist: Discuss medications	7 (2.2)	152 (33.0)	23.40 [10.08, 54.4]	<.0001
Assist: Prescribe medications[d]	0 (0.0)	7 (1.6)	—	—
Arrange[c]	3 (1.0)	70 (15.2)	15.07 [3.49, 65.1]	.0003

Note. AOR = adjusted odds ratio; CI = confidence interval. 4As performance was reported by smokers whose doctors were either in the control or in the intervention group of the study.
[a]Control group measurement occurred once. [b]Controlling for general practitioner–level clustering. [c]Adjusted odds ratio controlling for between group differences in preintervention rates. [d]No.

relatively low cost, and results could be further enhanced through additional evidence-based provider and patient-level components.

Strengths and Limitations

This pilot study provides the first high-quality data to characterize knowledge, attitudes, and rates of tobacco treatment delivery in primary care in Greece. Our study evaluated tobacco treatment delivery by patient-reported data, which is important because patient-reported rates of 4A's delivery have been shown to be more accurate than providers' self-report (Pbert et al., 1999). Our study achieved a very high participation among both GPs and eligible smokers, a fact

we attribute to the high respect given to University-based research in Greece. A limitation of our study was the use of a nonrandomized design. The use of the control group and before-after measurement, however, assist with minimizing the potential confounding factors that may have resulted in the observed changes. We conducted measurements in the control group at one time point only as it was felt to be a reasonable assumption that over the very short time frame (2-4 months) no changes would be expected. There were no other factors, to our knowledge, which may have influenced rates of tobacco treatment delivery beyond the intervention program. The control and intervention groups did document differences in their baseline rates of "assist" and "arrange," suggesting that our study groups may not have been 100%

comparable at baseline; we controlled for this discrepancy in our analysis. The voluntary nature of study participation may mean that participants were more motivated than the general population of GPs. While GPs were blind to the assessment details, it is possible that GPs overperformed during the data collection period. Given the relatively low rates of 4As at baseline, it is unlikely that this has occurred. Finally, there is a possibility of reporting bias given the patients self-reported nature of 4As delivery, so as not to have their GP rated unfavorably, even though they were instructed differently.

Implications for Practice and Research

The present pilot study provides initial data supporting the generalizability of the OMSC program to GPs in Greece. However, further research is required to understand the generalizability of our findings to the larger population of GPs in both Greece and other European settings. Our study documented a trend to suggest that GPs who demonstrated the greatest improvements in 4As delivery were those who had the lowest performance at baseline and where there was the largest opportunity for improvement. This observation may suggest that future interventions should specifically target GPs with lower performance.

The pilot testing of TiTAN Crete project focussed only on GPs; however, results from OMSC project found that the intervention program was suitable for implementation in interdisciplinary teams that include physicians, nurses, and other health professionals (Papadakis et al., 2016) and should be considered for future research.

Although not a target of the intervention, we documented changes in GPs' personal smoking behavior. Among the five GPs were currently smokers, three had quit smoking, and two had unsuccessfully tried to quit.

Smokers sampled reported low rates of readiness to quit, low self-efficacy with quitting, and high rates of daily tobacco consumption. This profile appears to be representative of the broader population of smokers in Greece and other Southern European Countries (European Commission, 2017). The small proportion of patients reporting readiness to quit may explain the relatively low rates at which "assistance" with quitting and "arranging" follow-up occurred, as these interventions are typically delivered to patients interested in quitting.

Conclusions

The TiTAN Crete intervention, based on evidence-based tobacco treatment techniques, was associated with significant increases in GP's knowledge, attitudes, and rates of tobacco treatment delivery. Future research should examine methods for supporting broader dissemination of well-designed interventions in primary care settings, and strategies for intervening with smokers not ready to quit.

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Publication #4

Factors associated with rates of tobacco treatment delivery by General Practitioners in Greece: Missed opportunities for prevention?

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ABSTRACT

INTRODUCTION This study investigates the clinic-, provider- and patient-level factors associated with delivery of 4 (Ask, Advise, Assist, Arrange) elements of the 5As approach to smoking cessation in general practice in Greece.

METHODS We conducted a secondary analysis of data derived from a quasi-experimental study (The TiTAN Crete study) among general practitioners (GPs) in Crete, Greece in 2015–2016. Twenty-four GPs and a cross-sectional sample of 1301 smokers from their practices were surveyed. This paper reports on the results of the multi-level modelling conducted to examine predictors of 4As delivery.

RESULTS Our analysis found clinic characteristics, including the presence of an electronic medical record, being located in a rural setting, and being in private practice were significantly associated with increased rates of tobacco treatment delivery. Female GPs were more likely than males to arrange follow-up (AOR 3.38, 95%CI 1.11, 10.35). Our analysis found a variety of patient-level factors were positively associated with tobacco treatment delivery, including: longer smoking history; presence of a smoking related illness; readiness to quit smoking; and symptoms or a diagnosis of anxiety, depression or other mental health illness. Other patient-level factors were negatively associated with tobacco treatment delivery, including level of education and reason for visit. Patients seen in clinic for episodic care were less likely to be 'asked' (AOR 0.22, 95%CI 0.12, 0.39), 'advised' (AOR 0.22, 95%CI 0.13, 0.38), and receive 'assistance' (AOR 0.36, 95%CI 0.19, 0.66) compared to patients seen in clinic for a medical examination.

CONCLUSIONS Providers are significantly more frequently delivering tobacco treatment to a sub-group of high-risk patients compared to other tobacco users in their clinical practice. This results in missed opportunities for early intervention and disease prevention.

TRIAL REGISTRATION The study is registered on ISRCTN # 10306198
ABBREVIATIONS CI: confidence interval, GP: general practitioner, OR: odds ratio, AOR: adjusted odds ratio, WHO: World Health Organization

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INTRODUCTION

Tobacco use remains the leading cause of preventable disease and death in Europe and worldwide[1]. The World Health Organization (WHO) and the European Tobacco Treatment Guidelines have recognized tobacco use as a disease and recommend tobacco treatment as a priority for the prevention and control of chronic diseases in primary care practice[2,3].

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According to the latest Special Eurobarometer report on the attitudes of Europeans towards tobacco and electronic cigarettes, Greece has the highest prevalence of smoking among European member states: one-third of adults are smokers (37.0%) while one-fifth of adult smokers (20.0%) have never tried to quit smoking[4]. Of those who tried, or that have quit smoking, the vast majority did so unassisted[4].

General practitioners (GPs) are ideally positioned to deliver tobacco treatment interventions[2] for several reasons: GPs interact with a large part of the population regularly[5]; tobacco treatment delivery may be more acceptable, given a GP's role to prevent disease and promote healthy lifestyle[6]; and GPs have established trusted interpersonal relationships with their patients[7,8]. As a result, clinical practice guidelines for tobacco treatment delivery recommend that GPs use the following '5As' approach for addressing tobacco use in clinical practice: *Ask* about tobacco use at every visit; *Advise* smokers to quit; *Assess* smokers' readiness to quit; *Assist* smokers to quit using a combination of behavioral counseling and pharmacotherapy; and *Arrange* follow-up visits to review progress, address any problems and anticipate future challenges in order to prevent smokers from relapsing[2,3,9].

Despite clear guidelines, many GPs find it difficult to integrate tobacco treatment delivery into their daily clinical practice[10,11]. Previous evaluations report significant variation in the rates at which the '5As' are delivered by GPs to patients, even among GPs within the same clinic[12,13]. Multi-component interventions, are interventions that combine two or more intervention strategies[14,15]. There is good evidence from meta-analyses to show that multi-component interventions that include training and other provider- and patient-level supports increase rates of 5As delivery in primary care practice settings[7,14,15]. The effectiveness of multi-component interventions is hypothesized to be related to the fact that they can address the multiple barriers to tobacco treatment delivery in the primary care setting[14]. However, variations in the rates at which providers intervene with patients who smoke continue to be documented even following exposure to multi-component interventions[12]. We hypothesize that increased knowledge of the clinic-, provider-, and patient-level factors that are associated with delivery

of the '5As' could aid the identification of sub-populations that might benefit from interventions to increase tobacco treatment delivery.

The purpose of this study was to investigate the clinic-, provider- and patient-level determinants of tobacco treatment delivery for 4 (Ask, Advise, Assist, Arrange) of the 5As in general practices in Crete, Greece. The present study did not examine the 'Assess' strategy as part of the intervention, as it was not of specific interest to investigators.

METHODS
Design and setting
We conducted a secondary analysis of data generated from a quasi-experimental study (TiTAN Crete) to examine predictors of 4As delivery using three level (clinic, provider, patient) multi-level modelling. The study took place in general practices on the island of Crete in Greece. Data were collected from the practices of providers and from a sample of their patients who smoke.

The TiTAN Crete Study
The TiTAN Crete project examined the impact of a multi-component intervention to increase rates of '4As' tobacco treatment delivery using a quasi-experimental non-randomized controlled design. The study was approved by the University Hospital of Heraklion Ethics Board and registered on ISRCTN #10306198. The full study protocol[16] and main results[12] have previously been published.

As part of the TiTAN Crete study, all GPs (n=26) in the geographically defined intervention and control regions of Crete were invited to participate. Twenty-four GPs agreed to participate in the study, provided informed consent and completed a baseline survey. GPs (n=14) in the city of Heraklion were exposed to the intervention programme and acted as the intervention group, while those in the city of Rethymnon (n=10) were not exposed to the intervention programme and acted as the control group. Independent, cross-sectional samples of eligible patients were recruited from practices in the intervention group before (May–September 2015) and after (March–May 2016) exposure to the intervention-training programme (September 2015). Similarly, a cross-sectional sample of eligible patients from practices in the control group was recruited, but only at one time point (between

December – May 2016), as it was assumed that no changes in outcomes would occur during the short time period of the study. Patients were screened for eligibility in the waiting rooms of all participating GP offices. Eligibility criteria included being: 18 years of age or older; current tobacco users (≥1 cigarette per day); seen in clinic for a non-urgent medical visit; and able to read/understand Greek. Eligible patients who agreed to participate in the study provided informed consent and completed the study survey at the end of their clinic appointment. This methodology was repeated four to six months following implementation of the intervention programme, in the intervention group only.

The TiTAN Crete Intervention

The TiTAN Crete intervention programme was based on the Ottawa Model for Smoking Cessation (OMSC, University of Ottawa Heart Institute), an evidence-based intervention tested in primary care practices in Canada. The OMSC intervention was adapted to reflect the local language, cultural norms related to tobacco use, the health system, and GPs clinical practice routines in Greece[13-16]. The intervention programme, which has been previously described, consisted of a 1-day core tobacco dependence treatment training programme, two booster training sessions lasting 2.5 hours each delivered at 2 and 4 months after the initial training, and the dissemination of GP and patient clinical resources to support the integration of evidence-based tobacco treatment into daily clinical routines[16]. The resources included: a patient tobacco-use survey, a provider smoking cessation consult form, provider quick reference sheets, patient quit-plan booklets, and posters. The training materials and resources are available at www.titan.uoc.gr. The control group was not exposed to any intervention programme.

Measures

Outcomes: GP performance in '4As' delivery
Performance of '4As' delivery ('Ask', 'Advise', 'Assist', 'Arrange') was assessed using a patient exit survey. The survey asked participants to respond either 'yes', 'no' or 'don't know' regarding whether on the same day of their visit to the clinic ('index visit') the GP asked them if they smoke ('Ask'); advised them to quit ('Advise'); provided help material; and arranged

follow-up support ('Arrange'), including scheduling a follow-up for assistance to quit ('Assist'), with respondents prompted with examples of assistance (i.e. set a quit date, provided pharmacotherapy, provided counselling, provided self-visit at the clinic or referral to a specialized hospital-based quit smoking clinic.

Predictor variables
Clinic-, provider- (i.e., GP) and patient-level variables thought to be associated with rates of tobacco treatment delivery were assessed. Clinic-level variables assessed included: exposure to the TiTAN Crete training intervention (yes/no), the geographic location of clinic (urban/rural/suburban), reimbursement method (fee for service or salaried) and type of record system. Provider-level variables assessed included: age, gender, number of years practicing medicine, previous cessation training, and personal tobacco use. Patient-level variables assessed included: age, gender, nationality, formal education, and current or past smoking-related illness (e.g. heart disease, stroke, chronic obstructive pulmonary disease, and cancer). The Greek validation of the 4-item Patient Health Questionnaire (PHQ-4) was used to screen for anxiety and depression[17,18]. Participants were also asked to report if they had been diagnosed with anxiety, depression or mental health illness in the past. Smoking related variables included two variables from the Heaviness of Smoking Index (HSI)[19,20], including time to first cigarettes in the morning and number of cigarettes smoked per day (CPD). Number of years of tobacco use was documented. Patient self-efficacy ('On a scale of 1 to 10 how confident are you that you would be able to quit smoking at this time?') and readiness to quit smoking ('Which of the following best describes your feelings about smoking right now?') were also assessed as well as the purpose of the clinic visit.

Secondary analysis & multi-level modelling procedures
Descriptive statistics summarized characteristics of the sample at the clinic-, provider- and patient-levels. To examine clinic-, provider-, and patient-level factors associated with each outcome (i.e. performance of '4As'), separate multi-level logistic regression analyses were performed. We included patients from the 'after' cross-sectional sample in the

intervention group and the cross-sectional sample in the control group for comparison. Intervention group (control=0, intervention=1) was included as a variable in the model to account for the potential effect of the TiTAN intervention. The model building followed a step-wise approach whereby significant variables (p<0.1) from each level (clinic, provider, and patient) were included in each step. Only those variables significant at p<0.05 were kept in the final model. Results were reported as adjusted odds ratios (AOR) and 95% confidence intervals (95%CI). We used a cut off score of ≥3 on the PHQ as a positive screen for anxiety or depression[17,21]. For the multi-level analysis we created a combined variable (1 = a positive screen for anxiety or depression or a patient self-reported diagnosis of anxiety, depression or other mental health illness being, and 0=all other patients).

RESULTS

A sample of 1301 patients who smoked was recruited from control and intervention clinics and was included in the analysis. The recruitment rate was 98.8% of eligible patients screened. Characteristics of the clinics, providers, and the patients sampled are presented in Table 1.

Effects of the TiTAN Intervention

The analysis documented that following the intervention; GPs in the intervention group were significantly more likely to deliver each of the '4As' during their daily clinical practice compared to those in the control group (Table 2).

Predictors of '4As' Delivery

Clinic-level factors

GPs working in clinics with an electronic medical record were more likely to 'ask' (AOR 5.03, 95%CI 1.25, 20.18; p<0.05) and 'advise' (AOR 4.59 95%CI 1.53, 13.76; p<0.01) patients to quit smoking relative to a manual record system (Table 2). Rates of 'assist' and 'arrange' were significantly lower among GPs in suburban practices compared to rural settings (AOR 0.30, 95%CI 0.14, 0.67; p<0.01, and AOR 0.18, 95%CI 0.05, 0.67; p<0.05, respectively). Being a GP from a salaried Health Care Centre was significantly associated with decreased rates of 'assist' compared to those in private practice (AOR 0.19, 95%CI 0.04, 0.85; p<0.05).

Table 1. Characteristics of clinics, providers and patients sampled

Parameter	Response	Value
Clinic-level variables		
Geographic location	Urban	8.3%
	Suburban	20.8%
	Rural	70.8%
Type of record system	Electronic	36.4%
	Manual	27.3%
	Both	36.4%
Reimbursement method	Fee for service (private)	12.5%
	Salaried (public)	87.5%
Provider-level variables		
Gender	Female	54.2%
	Male	45.8%
Years of practicing medicine	Mean (SD)	13.8 (4.9)
Age	30–39 years	20.0%
	40–49 years	70.0%
	50–59 years	10.0%
Previous smoking cessation training	No	70.0%
	Yes	30.0%
Smoking status	Smoker	25.0%
	Ex-smoker	33.3%
	Non-smoker	41.7%
Patient-level variables		
Age	Mean years (SD)	48.2 (14.0)
Gender	Female	41.6%
	Male	58.4%
Education	Grade school	21.2%
	Junior high school	20.9%
	High school	30.6%
	College/University	27.3%
Nationality	Greek	97.9%
	Other	2.1%
Smoking-related illness[a]		18.4%
Anxiety, depression or other mental health illness		13.2%
Depressive symptoms[b]	PHQ score >3	8.1%
Anxiety symptoms[c]	PHQ score >3	20.1%
Purpose of visit	Medical examination	44.9%
	Prescription	38.6%
	Other	16.5%

Continued

Table 1. Continued

Parameter	Response	Value
Cigarettes/day	<15	21.1%
	15–20	48.3%
	>20	30.6%
Time to first cigarette in am	>30 minutes	30.5%
	<30 minutes	69.5%
Years of tobacco use	0–2 years	1.5%
	3–9 years	7.1%
	10–19 years	22.2%
	20+ years	69.2%
Readiness to quit[d]	Next 30 days	19.9%
	Next 6 months	41.3%
	Not ready to quit	38.8%
Self-efficacy with quitting[e]	Low (<7/10)	87.0%
	High (>7/10)	13.0%

a Do you have… heart disease, stroke, heart failure/cancer/chronic obstructive pulmonary disease (COPD)? (1=yes, 0=no). b Positive screen (score of 3 or more) on Patient Health Questionnaire (PHQ)-4 for Depression. c Positive screen (score of 3 or more) on Patient Health Questionnaire (PHQ)-4 for Anxiety. d Which of the following best describes your feelings about smoking right now? (responses: 1=ready to quit in next 30 days, 0= ready to quit in next 6 months or not ready to quit). e On a scale of 1 to 10 how confident are you that you would be able to quit smoking at this time? (1=not at all confident, 10=extremely confident).

Provider-level factors

Female providers were more likely to 'arrange' follow-up support relative to male providers (AOR 3.38, 95%CI 1.11, 10.35; p<005), although the confidence intervals are quite wide (Table 2). None

of the other GP-level variables examined were found to be significant in predicting '4As' delivery.

Patient-level factors

Patients with a junior high school education or less were less likely to be 'asked' (AOR 0.45, 95%CI 0.24, 0.86; p<0.05) and 'advised' (AOR 0.49, 95%CI 0.26, 0.92; p<0.05) about tobacco use than those with a grade school education (Table 2). Having a smoking-related illness was positively associated with increased frequency of delivery of 'assist' (AOR 2.75, 95%CI 1.55, 4.88; p<0.001) and 'arrange' (AOR 2.88, 95%CI 1.47, 5.65; p<0.01). A positive screen for anxiety or depression or self-reported diagnosis of anxiety, depression, or mental health illness was also associated with higher rates of 'assist' (AOR 2.47, 95%CI 1.28, 4.78; p<0.01) and 'arrange' (AOR 2.18, 95%CI 1.08, 4.41; p<0.05). Individuals who smoked for more than 2 years were more likely to be 'asked' and 'advised' relative to those who smoked for less than 2 years. Individuals reporting a readiness to quit in the next 30 days were more likely to be 'asked' (AOR 1.85, 95%CI 1.01, 3.39; p<0.05) and 'advised' (AOR 2.08, 95%CI 1.16, 3.74; p<0.05) to quit smoking relative to those who did not report being ready to quit smoking in the next 30 days. Patients seen by the GP for prescription were less likely to be 'assisted' (AOR 0.59, 95%CI 0.36, 0.94; p<0.05) relative to an appointment for a medical examination.

Table 2. Final model examining clinic-, general practitioner-, and patient-level characteristics associated with rates of 4As tobacco treatment delivery

Parameter	Adjusted Odds Ratio (95%CI)[a]			
	ASK	ADVISE	ASSIST	ARRANGE
Intervention characteristics				
Training intervention				
Not exposed	1.00	1.00	1.00	1.00
Exposed	3.11 (1.11, 8.68)*	4.60 (2.04, 10.36)***	68.26 (29.61, 157.37)***	22.65 (5.35, 95.78)***
Clinic-level variables				
Geographic location				
Rural	–	–	1.00	1.00
Suburban			0.30 (0.14, 0.67)**	0.18 (0.05, 0.67)*
Urban			0.23 (0.04, 1.49)	2.28 (0.63, 9.86)
Type of record system				
Manual	1.00	1.00	–	–
Electronic	5.03 (1.25, 20.18)*	4.59 (1.53, 13.76)**		

Continued

Table 2. Continued

Parameter	ASK	ADVISE	ASSIST	ARRANGE
		Adjusted Odds Ratio (95%CI)[a]		
Reimbursement method				
Fee for service (private)	–	–	1.00	
Salaried (public)			0.19 (0.04, 0.85)*	
Provider-level variables				
Gender				
Male	–	–	–	1.00
Female				3.38 (1.11, 10.35)*
Patient-level variables				
Education				
Grade school	1.00	1.00	–	–
Junior high school	0.45 (0.24, 0.86)*	0.49 (0.26, 0.92)*		
High school	0.68 (0.37, 1.27)	0.60 (0.33, 1.10)		
College/University	0.86 (0.43, 1.71)	0.84 (0.43, 1.62)		
Smoking-related illness				
No	–	–	1.00	1.00
Yes			2.75 (1.55, 4.88)***	2.88 (1.47, 5.65)**
Symptoms or a diagnosis Anxiety, depression, or other mental illness[b]				
No	–	–	1.00	1.00
Yes			2.47 (1.28, 4.78)**	2.18 (1.08, 4.41)*
Years of tobacco use				
0–2 years	1.00	1.00	–	–
3–9 years	5.55 (1.14, 27.09)*	3.19 (0.71, 14.24)		
10–19 years	5.04 (1.29, 19.79)*	3.72 (1.00, 13.83)*		
20+ years	6.39 (1.70, 24.01)**	4.79 (1.34, 17.08)*		
Readiness to quit[c]				
Not ready in the next 30 days	1.00	1.00	1.00	1.00
Ready in the next 30 days	1.85 (1.01, 3.39)*	2.08 (1.16, 3.74)*		
Purpose of visit				
Medical examination	1.00	1.00	1.00	1.00
Prescription	0.78 (0.48, 1.25)	0.71 (0.45, 1.12)	0.59 (0.36, 0.94)*	
Other/Missing	0.22 (0.12, 0.39)***	0.22 (0.13, 0.38)***	0.36 (0.19, 0.66)**	
Random Variance				
General practitioner	0.984 (0.449)	0.557 (0.282)	0.251 (0.180)	0.638 (0.380)

Final Model Ask: 8 clinics, 24 general practitioners; 1= Asked about smoking (n=529), 0= Not asked about smoking (n=173).
Final Model Advise (overall): 8 clinics, 24 general practitioners; 1= Advised to quit smoking (n=510), 0= Not advised to quit smoking (n=192).
Final Model Assist (overall): 8 clinics, 24 general practitioners; 1= Assisted with quitting (n=324), 0= Not assisted with quitting (n=449).
Final Model Arrange: 8 clinics, 24 general practitioners; 1= Arranged follow-up (n=73), 0= Did not arrange follow-up (n=702).
p-values calculated based on Wald Tests. *p<0.05; ** p<0.01; ***p<0.001.
a Models adjusted for general practitioner-level clustering effects; CI = confidence interval. b Self-reported positive screen (>3) on PHQ-4 or diagnosis of anxiety, depression or other mental health illness. c Which of the following best describes your feelings about smoking right now? (responses: 1=ready to quit in next 30 days, 0= ready to quit in next 6 months or not ready to quit).

DISCUSSION

Several clinic- and patient-level factors were associated with increased likelihood of receiving '4As' tobacco treatment. Specifically, patients with a smoking related illness, mental health diagnoses and a greater number of years smoking were more likely to receive cessation treatment. These trends were reduced but not eliminated by exposure to

the training-based intervention. Similar trends reflecting this selection bias in the delivery of tobacco treatment have recently been reported among GPs sampled in Canada[21,22]. Our findings are consistent with previous research which found that 'advice' to quit smoking is delivered more frequently in primary care to individuals with a smoking-related illness[22,23], a smoking history of 20 or more years, and higher levels of nicotine dependence[24]. While this group of 'high risk' patients are important targets for intervention, and may be most open to intervention, best practice guidelines call for 'advise' and 'assistance' with quitting to be delivered to all patients, at all visits[2,3,9].

Patients were less likely to receive intervention when seen in clinic for episodic visits or visits for a prescription refill compared to appointments for medical examinations. This may be a function of the opportunistic discussion or time typically afforded to medical examination versus appointment for medication refills. Given that brief advice can be delivered in a short period of time this may indicate the existence of other barriers (e.g. attitudinal, skill), which may be the focus of future interventions. Additionally, as has been reported by others, female GPs were more likely to arrange follow-up support with patients[21,25]. There was a positive association with having an electronic medical record system and the odds of 'ask' and 'advise', which attests to the possible benefit of including reminders in electronic record systems as has been reported by others[26].

Implications for future practice and research

Our study has documented the missed opportunities for early intervention and prevention in addressing tobacco use with all patients who smoke in general practices sampled in Crete, Greece. The patterns observed may be associated with provider beliefs about the importance of cessation once patients are at increased 'risk' relative to 'healthy' patients. Likewise, it is also possible that provider beliefs about patient readiness to quit and/or openness to listen to advice and intervention about smoking cessation may play a role in the observed trends. Perhaps critical to this discussion and future interventions is an understanding that all patients who smoke are at enormous risk of disease, disability, and death[1]. Gold standard evidence has shown that one in every two smokers will die of tobacco-related illness[27]. Moreover, quitting as early as possible, in particular before the age of 40 is the only method for reducing the devastating effects of smoking[27]. Our study's findings and those of previous researchers suggest clinicians have a tendency to wait until a patient is diagnosed with a smoking-related illness or begin to see measurable consequences of tobacco use before intervening with cessation assistance[22,23]. Interestingly, the predictors identified differed for each of the 4As suggesting each is a distinct step with its own set of determinants and as such may require different intervention strategies in order to increase treatment rates. A finding that has been previously reported in the literature[14,21,22,28].

Investigations, such as our own, which examine the patterns associated with tobacco treatment delivery in primary care can assist with designing future training interventions for GPs with the goal of ensuring all patients who smoke receive regular advice, motivational interventions, and evidence-based cessation treatments for smoking cessation. Furthermore, the availability of educational and motivational interventions to assist patients who might still be disease- or symptom-free to comprehend the significant risk imposed by their tobacco addiction may assist with increasing treatment rates.

At a time in which Greece and other European countries are reforming their primary health care systems, supporting the primary care practitioners' role as 'gate-keepers' of patient and community health and ensuring the early detection, prevention and management of chronic diseases is critical. Central to this role is the responsibility to address tobacco use with all patients who smoke within a primary care clinical practice.

Strengths and limitations

The multi-level analysis used in the present study allowed us to examine multiple factors associated with rates of tobacco treatment delivery in primary care practice. Moreover, we have examined factors at three levels: clinic, provider, and patient. The present study had very high rates of participation from both GPs and patients, and as such is highly representative of patients and providers in the primary care practices sampled. The study included representation from GPs in rural, semi-urban, and remote areas, which

permits an assessment of the generalizability of the findings to different clinical practices. The inclusion of rural and remote settings is infrequently seen in the smoking cessation literature examining primary care. Our findings are derived from primary care practices on the island of Crete in Greece and as such may not be generalizable to other settings or countries. We examined specific characteristics hypothesized to be of relevance to the delivery of tobacco treatment, which were collected as part of the TiTAN Crete study. Not all variance observed could be explained by the factors examined, particularly at the provider level. It is possible that a more in-depth examination of predictors could further explain the variance in rates of tobacco treatment and should be the focus of future research. Finally, the present study did not examine the 'Assess' component of the '5As' model, in order to reduce participant burden, as this variable was not of specific interest to study investigators. It would be important to note measurement of 4 of the 5As does not affect the validity of the study instrument or pose any significant limitations to the study findings in our opinion.

CONCLUSIONS

Our data suggest providers may be significantly more frequently delivering tobacco treatments to a sub-group of high-risk patients in comparison to other tobacco users in their practices. Given the importance of intervening with all patients who smoke, efforts should focus on strategies to reach a larger proportion of the patient population that smokes in order to optimize opportunities for early intervention and prevention of disease.

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