

Study ID	Instrument	Participants	Development	Validation	Additional information
Chaaya 2004 [9]	<ul style="list-style-type: none"> • Questionnaire on practices of waterpipe and cigarette use among pregnant women (also measures knowledge and attitudes) • Language: Arabic • Availability: not published 	<ul style="list-style-type: none"> • Not reported 	<ul style="list-style-type: none"> • Item generation: <ul style="list-style-type: none"> ○ literature review ○ discussions with field workers for relevance to the population surveyed ○ revised by the Ministry of Public Health • Pilot tested on 30 women • 120 questions including questions on actual cigarette and arguileh practices: current and previous use, smoking patterns (regular, occasional), age at initiation, place of smoking, smoking frequency, quitting attempts, and smoking status of husband and other household members. 	<ul style="list-style-type: none"> • Internal consistency: Cronbach's alpha: <ul style="list-style-type: none"> ○ knowledge scale ($\alpha=0.91$) ○ attitude scale ($\alpha=0.85$) • Content validity: inspection of previous similar questionnaires 	<p>Smokers are subdivided into:</p> <ul style="list-style-type: none"> • persistent smokers (women who continued smoking all through their pregnancy) • spontaneous quitters (women who successfully quit smoking due to their pregnancy) • failed quitters (women who stopped smoking for a while, but then relapsed)
Maziak 2005 [4]	<ul style="list-style-type: none"> • Questionnaire for the assessment of waterpipe use. • Language: English. 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Item generation: <ul style="list-style-type: none"> ○ literature review ○ discussions among teams working in tobacco research in East 	<ul style="list-style-type: none"> • Face validity 	<ul style="list-style-type: none"> • No pilot study done

	<ul style="list-style-type: none"> • Availability: Appendix A of the paper [4] 		<p>Mediterranean region</p> <ul style="list-style-type: none"> • 10 items: ever smoking (1), current smoking (1), former smoking (1), pattern of use (5), quitting (2) 		
Hanna 2006 [10]	<ul style="list-style-type: none"> • Questionnaires on use of different forms of tobacco • Languages: Punjabi, Urdu, Sylheti Cantonese • Availability: http://www.ashscotland.org.uk/ash/ash_display.jsp?pContentID=4385&p_applic=CCC&p_service=Content.show& 	<ul style="list-style-type: none"> • Four bilingual coworkers: a Pakistani, a Bangladeshi, a Chinese and an Indian Sikh. • Panel of 10 lay people, preferably monolingual for each of the languages of interest 	<ul style="list-style-type: none"> • Item generation: <ul style="list-style-type: none"> ○ Questions derived from 6 UK questionnaires, mainly the Health Survey for England 1999 ○ Questions from selected questionnaires already translated to the languages of interest. ○ Translation of remaining questions by bilingual coworkers • Refinement for linguistic, content, and social acceptability with monolingual lay people: <ul style="list-style-type: none"> ○ One to one consultation ○ Panel discussions 	<ul style="list-style-type: none"> • Face validity: field testing for acceptability and understanding with 20 subjects per language recruited by coworker (except Sylheti) • Cross-cultural comparability: literal back translation into English by coworkers; each question checked for equivalence and comparability to every other language and to English; where necessary, changes were made for comparability 	<ul style="list-style-type: none"> • Key areas covered (vary by culture): cigarette, cigar, bidi, pipe, waterpipe, smokeless tobacco • Extremely difficult to recruit a Sylheti – English speaking coworker. Thus some phases of the research had to be omitted
Global adult tobacco survey (GATS)	<ul style="list-style-type: none"> • Questionnaire for the assessment of waterpipe use. • Language: English, Arabic, 	<ul style="list-style-type: none"> • Samples from Egypt, Turkey, Ukraine, and Vietnam 	<ul style="list-style-type: none"> • 6 core questions: frequency of use, age at first use, number of years of use, duration of smoking session, sharing 	<ul style="list-style-type: none"> • Consultation with 3 experts • Each country-specific questionnaire was translated into the local 	<ul style="list-style-type: none"> • Detailed instructions on conducting the survey are available [11].

[11]	<p>Turkish, Ukrainian, and Vietnamese</p> <ul style="list-style-type: none"> • Availability: http://www.cdc.gov/tobacco/global/gats/ [11] 		<p>of waterpipe device</p> <ul style="list-style-type: none"> • 4 optional questions: number of “rocks” smoked, location of use, use of flavored tobacco, use of other substances 	<p>language(s), back translated into English, and then reviewed for appropriateness.</p> <ul style="list-style-type: none"> • Pretested an fielded in the 4 aforementioned countries; reliability and validity data pending 	
Salameh 2008 [12]	<ul style="list-style-type: none"> • Lebanon Waterpipe Dependence Scale (LWDS-11) • Concept measured: waterpipe dependence • Language: Arabic • Availability: Table 2 of the paper [12] 	<ul style="list-style-type: none"> • Sample 1 <ul style="list-style-type: none"> ○ convenience sample of 103 regular waterpipe smokers ○ Face to face interview ○ Semiquantitative measurement of nicotine metabolites • Sample 2: <ul style="list-style-type: none"> ○ convenience sample of 15 regular waterpipe smokers ○ Face to face interview ○ Semiquantitative measurement of nicotine metabolites 	<ul style="list-style-type: none"> • Item generation: 21 items; 15 adapted from FTND & DSM-IV; 6 added by authors • Pretesting of preliminary version in 8 waterpipe smokers • Item reduction: <ul style="list-style-type: none"> ○ face to face interview (sample 1) ○ principal component analysis leading to 11 items questionnaire (sample 1) • Final version: 11 items in 4 subscales: <ul style="list-style-type: none"> ○ Nicotine dependence (4) ○ Negative reinforcement (2) ○ Psychological craving (3) ○ Positive reinforcement 	<ul style="list-style-type: none"> • Reproducibility : test retest 2 weeks apart (sample 1) (r=0.92) • Internal consistency: Cronbach’s alpha ($\alpha=0.83$) • Construct validity: cross validation by principal components analysis (sample 3) • Discriminant validity: intersubscale correlation and component correlation matrix (sample 1,2 and 3) (($r<0.38$)) • Convergent construct validity: correlation between LWDS-11 scale and subscales with salivary cotinine, exhaled-air CO and the 	<ul style="list-style-type: none"> • Scale: 4-point (0–3) Likert-type • Scoring: sum of subscales scores • Threshold for dependence: 10 • Semiquantitative measurement of nicotine metabolites: <ul style="list-style-type: none"> ○ Exhaled CO measurement prior to the beginning of the smoking (samples 1, 2) • Nicotine metabolite measurements in saliva 1 hr after beginning of smoking (semiquantitative method for sample 1; HPLC quantitative method for sample 2)

		<ul style="list-style-type: none"> • Sample 3: <ul style="list-style-type: none"> ○ random sample of 188 regular waterpipe smokers ○ Telephone interview using random digital dialing 	(2)	<ul style="list-style-type: none"> • number of waterpipes per week (samples 1 and 2) ($0.71 < r < 0.90$) • Group differentiation: between heavy, moderate, and mild smoker by LWDS-11 scoring, (samples 1 and 3) ($p < 0.0001$) 	
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FTND = Fagerstrom Test for Nicotine Dependence

DSM-IV = Diagnostic and Statistical Manual of Mental Disorders of dependence

CO = Carbon monoxide

HPLC = high performance liquid chromatography