

Accuracy of the Smoking Questionnaire*

by

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SUMMARY

The smoking questionnaire (SQ), a multidimensional questionnaire covering the major dimensions of cigarette smoking, was developed to address the heterogeneity in the assessment of smoking exposure. It consists of eight questions and can be completed within a few minutes. Test-retest reliability of the SQ and concurrent validity with the Behavior Risk Factor Surveillance System (BRFSS) 2011 questionnaire were examined in a clinical study conducted in adult US current menthol cigarette smokers. The SQ and the BRFSS were self-administrated twice before and after randomization with a 6-day interval. The inter-temporal analyses included current smokers aged 22 to 66 years who completed the SQ at both timepoints. The percent agreement of items and 95% confidence intervals were calculated for the comparisons between the two timepoints and between the SQ and the BRFSS questionnaire. To evaluate the feasibility of the SQ and to capture subjects' opinions about the SQ, a meta-questionnaire was administrated. High test-retest reliability levels (percent agreement of > 70 to 100% between the two timepoints) were found for SQ smoking behavior items, in particular for items related to current smoking status, 100- cigarettes lifetime, regular smoking, age of initiation and preferred brand. Moderate (55% agreement) to high test-retest reliability (84% agreement) was found for daily consumption of manufactured cigarettes. The comparison between the SQ and the BRFSS 2011 showed a high concurrent validity (98 to 100% agreement). The SQ was completed on average in 3 to 4 min and was assessed as easy to use. The findings demonstrate that the SQ is reliable in smokers and a practical tool to assess smoking exposure in clinical studies. [Beitr. Tabakforsch. Int. 27 (2017) 224–239]

ZUSAMMENFASSUNG

Der Fragebogen zum Rauchen (SQ), der die Hauptdimensionen des Zigarettenrauchens umfasst, wurde angesichts der fehlenden Einheitlichkeit der Erfassung früheren und aktuellen Rauchens entwickelt. Er besteht aus acht Fragen und kann in wenigen Minuten beantwortet werden. Die Test-Retest-Reliabilität des SQ wurde in einer klinischen Studie mit US Rauchern von Menthol-Zigaretten untersucht und die Übereinstimmungsvalidität hinsichtlich des 2011 Behavior Risk Factor Surveillance Systems (BRFSS) Fragebogens beurteilt. Der SQ und der BRFSS-Fragebogen wurden vor und nach der Randomisierung der Studienteilnehmer im Abstand von 6 Tagen zweimal von diesen selbst ausgefüllt. In den Vergleich der beiden Zeitpunkte wurden Raucher im Alter zwischen 22 und 66 Jahren einbezogen, die den SQ zu beiden Zeitpunkten ausgefüllt hatten. Die prozentuale Übereinstimmung der Fragen wurde, samt 95%-Konfidenzintervallen, für den Vergleich zwischen den Zeitpunkten und zwischen dem SQ und dem BRFSS-Fragebogen berechnet. Zur Bewertung der praktischen Durchführbarkeit und zur Erfassung der Meinung der Studienteilnehmer wurde diesen ein Meta-Fragebogen vorgelegt. Hohe Test-Retest-Reliabilitätsniveaus (> 70 bis 100% Übereinstimmung) wurden für die SQ-Fragen zum Rauchverhalten gefunden, insbesondere für die Fragen zum gegenwärtigen Rauchstatus, dem Konsum von 100 Zigaretten im Leben, zum regelmäßigen Rauchen, dem Alter bei Erstkonsum und zur bevorzugten Marke. Mäßige (55% Übereinstimmung) bis hohe Reliabilität (84% Übereinstimmung) wurde für den täglichen Konsum von Fertizigaretten festgestellt. Der Vergleich zwischen dem SQ und dem BRFSS-2011-Fragebogen zeigte eine hohe Übereinstimmungsvalidität (98 bis 100% Übereinstimmung). Der SQ wurde im Durchschnitt in 3 bis 4 Minuten ausgefüllt und als leicht ausfüllbar beurteilt. Die Ergebnisse zeigen, dass der SQ für

Raucher ein verlässliches und praktikables Instrument zur Erfassung der Exposition durch Rauchen in klinischen Studien ist. [Beitr. Tabakforsch. Int. 27 (2017) 224–239]

RESUME

Le questionnaire sur le tabagisme (SQ), questionnaire multi-dimensionnel couvrant les principales dimensions du tabagisme, a été développé afin de remédier à l'hétérogénéité dans l'évaluation de l'exposition au tabagisme. Il se compose de huit questions et peut être complété en quelques minutes. La fiabilité test-retest du SQ ainsi que la validité concomitante avec le questionnaire du Système de surveillance des facteurs de risque comportementaux (BRFSS) de 2011 ont été examinées dans une étude clinique menée chez des adultes américains, fumeurs de cigarettes au menthol. Le SQ et le BRFSS ont été auto-administrés deux fois, avant et après randomisation, avec un intervalle de 6 jours. Les analyses inter-temporelles comprenaient des fumeurs actuels âgés de 22 à 66 ans qui ont rempli le SQ aux deux points de mesure. La concordance en pourcentage des items et les intervalles de confiance à 95% ont été calculés pour les comparaisons entre les deux points de mesure, ainsi qu'entre le SQ et le BRFSS. Afin d'évaluer la faisabilité du SQ et pour saisir les opinions des sujets sur le SQ, un méta-questionnaire a été administré. Des niveaux élevés de fiabilité test-retest (concordance en pourcentage > 70–100% entre les deux points de mesure) ont été trouvés pour les items du SQ sur le comportement tabagique, en particulier pour les items sur l'état de tabagisme actuel, 100 cigarettes fumées au cours de la vie, le tabagisme régulier, l'âge d'initiation, et la marque de cigarette préférée. Une fiabilité modérée (55% de concordance) à élevée (84% de concordance) a été trouvée pour la consommation quotidienne de cigarettes industrielles. La comparaison entre le SQ et le BRFSS a montré une forte validité concomitante (98 à 100% de concordance). Le SQ a été complété en 3 à 4 minutes en moyenne et a été estimé comme facile à utiliser. Les résultats démontrent que le SQ est un questionnaire fiable chez les fumeurs et un outil pratique permettant l'évaluation de l'exposition au tabagisme dans les études cliniques. [Beitr. Tabakforsch. Int. 27 (2017) 224–239]

INTRODUCTION

Cigarette smoking is one of the most investigated risk factors in epidemiology. Somewhat surprisingly, the definition and measurement of smoking exposure have not been made consistent or standardized. The assessment of cumulative smoking exposure has been and is still being undertaken in a variety of ways. A review of ten major US surveys which collected data on smoking behaviors concluded that “a systematic understanding of the tobacco host remains unavailable due to gaps in survey content” (1). Two studies comparing smoking prevalence estimates in Europe pointed out that the questions used to assess smoking varied markedly and that there is an urgent need of developing standardized methods to monitor national smoking prevalence (2, 3).

To address the heterogeneity of smoking exposure assessment, the smoking questionnaire (SQ) was developed to cover the major dimensions of cigarette smoking (4). The SQ comprises 8 items, 6 related to smoking behavior and 2 related to quitting history (Appendix 1). The first 3 items are closed questions and the response categories are exhaustive and mutually exclusive. The last 5 items refer to the individual smoking or quitting history and are answered to the degree applicable. Item 1 (SQ1) allows for a broad classification of current cigarette smoking behavior (daily smoker, occasional smoker, ex-smoker, non-smoker). Item 2 (SQ2) collects information on the 100-cigarette lifetime criterion (Have you ever smoked 100 cigarettes or more in your life?) (5). Item 3 (SQ3) gathers ever regular smoking history defined as ever regularly smoking at least one cigarette per day. Item 4 (SQ4) captures the age of initiation. Items 5 and 6 (SQ5–6) record the current as well as the total quitting duration, respectively, the response format for quitting durations being a combination of years, months, and days. The brand of cigarettes predominantly smoked in the last 12 months of smoking is captured in item 7 (SQ7). Item 8 (SQ8) gathers the tobacco smoking history, i.e., information on daily consumption of manufactured (SQ8a), as well as hand-rolled cigarettes (SQ8b), cigars (SQ8c), and pipes (SQ8d), separately for 7 time periods ranging from the last 3 months to more than 20 years ago.

The SQ content is consistent with the World Health Organization criteria (5) for defining smoking history and status (4) as it allows for a broad classification of smoking behavior. Most importantly, it provides a basis for comparing smoking history assessment and results across studies. While the SQ is focusing on brevity and simplicity, it consists of a minimum standard, useful, sufficient, coherent, and consistent set of questions to assess cigarette smoking (4). Therefore, it would be of considerable value in studies where extremely detailed information on smoking exposure is not required and/or where smoking behavior is not the main subject of the investigation.

The value of the SQ can, however, only be evidenced once its accuracy has been demonstrated. The objective of the present work was to assess the accuracy of the SQ in a clinical study in adult current smokers by evaluating the test-retest reliability and the concurrent validity vis-a-vis the Behavior Risk Factor Surveillance System (BRFSS) 2011 (6) smoking questionnaire. In addition, the practicality of the SQ was rated by the subjects.

METHODS

Study design and subjects

The SQ was used in a randomized, controlled, open-label, 3 parallel groups, 3-month multi-center study assessing the effects of continued smoking, smoking abstinence, and switching to a Tobacco Heating System (THS) on biomarkers of exposure. The study was conducted at Dallas and Daytona Beach sites between December 2013 and October 2014. The study was approved by an Independent Ethics Committee (MidLands Independent Review Board, Overland Park, KS, USA), and was registered at www.clinicaltrials.gov (NCT01989156).

One hundred sixty-four healthy male and female smokers aged at least 22 years participated after written informed consent was obtained. They were required to have been cigarettes smokers for at least 3 consecutive years at screening and to be smoking on average at least 10 commercially available menthol cigarettes per day. On Day 0, 160 subjects were randomized in a 2:1:1 randomization ratio to either use THS, to continuing to smoke their preferred menthol conventional cigarettes (CC group), or to abstain from smoking. In the confinement exposure period (Day 1 to Day 5), product adherence was controlled by strict distribution of products.

Procedures

The SQ was self-administered at two distinct timepoints 6 days apart from each other. The first timepoint was on Day -1 and the second timepoint on Day 5. The Behavioral Risk Factor Surveillance System Questionnaire 2011 (6), section 7 tobacco use (BRFSS 2011, see Appendix 2), was self-administered at the same timepoints, prior to the administration of the SQ. A meta-questionnaire for assessing the SQ, containing 8 questions (Appendix 3), was administered immediately after the SQ at both timepoints. The first question of the meta-questionnaire recorded the time spent to complete the SQ. The second to fifth question addressed the subjects' opinion as to whether the SQ captured the smoking history and smoking behavior completely and correctly. The sixth to eighth questions collected information on the feasibility of the SQ. With the exception of question 1, which was completed by the investigator, the meta-questions were self-administered.

Analysis

For the inter-temporal comparison, subjects who completed the SQ at both timepoints were included. As all subjects were current smokers, SQ5, which should only be answered by ex-smokers, was excluded from the analysis. For SQ1, covering current smoking status, and SQ6, covering total quitting duration, only subjects in the CC group were included, as different responses can be expected from subjects in the THS and cessation groups. The percent agreement of items and its 95% confidence interval (CI) were calculated, using the asymptotic method with continuity correction described by NEWCOMBE in 1998 (7). Percent agreement was calculated both overall as well as stratified by sex and age group as the proportion of subjects who responded identically at the first and second timepoint (8). Test-retest reliability was categorized, based on percent agreement, as poor (0–30%), modest (30–50%), moderate (50–70%) or high (70–100%).

For SQ8a, covering cigarette consumption over the last 20 years, individual pack-years were derived by the sum of the trapezoids of daily cigarette consumption over the 7 assessment periods, divided by 20, the number of cigarettes per pack. As SQ8 is an open-ended question, a tendency of reporting the smoking of multiples of 5 or 10 cigarettes per day (heaping) can occur. To estimate the degree of heaping in the reported number of cigarettes

consumed per day, the heaping measure C_1 (9) was calculated for each of the seven periods assessed with SQ8a. Concurrent validity analyses were conducted in subjects who completed both the SQ and the BRFSS 2011 questionnaire by comparing SQ1 to BRFSS question 2, both collecting information on current smoking behavior, and SQ2 to BRFSS question 1, both capturing the 100-cigarettes criterion. The inter-instrument agreement between SQ1 and BRFSS Q2 was assessed in subjects of the CC group by the proportion of subjects who responded identically to both pairs of questions (8), and 95% CIs were calculated using the asymptotic method with continuity correction described by NEWCOMBE (7) for both pairs of questions, at each timepoint. Validity was categorized, based on percent agreement, as poor (0–30%), modest (30–50%), moderate (50–70%) or high (70–100%).

For the meta-questionnaire, the analyses included only subjects who completed both the SQ and the meta-questionnaire at either of the two timepoints. During analysis planning, it was decided to exclude questions 3 and 5 from the analysis, as these required a subjective assessment of the validity of the questionnaire.

Analyses were conducted with SAS® (SAS Institute Inc., Cary, NC, USA).

RESULTS

At the first timepoint, 148 subjects (90.2% of the 164 enrolled subjects) and at the second timepoint 153 subjects (95.6% of 160 randomized subjects) answered all of the SQ questions. 162 subjects (38 ± 11 years (mean ± standard deviation) of age; 60.5% male) responded to all of the SQ questions at either timepoint. Of these, 78 smoked > 19 cigarettes/day and 84 smoked 10–19 cigarettes/day.

139 subjects completed SQ2–4 and 137 subjects completed SQ7 at both timepoints. In the CC group, SQ1 and SQ6 were completed at both timepoints by 36 and 7 subjects, respectively. The number of subjects who completed SQ8a-d at both timepoints ranged from 112 to 138 across the 7 time periods and 4 product categories (manufactured cigarettes, hand-rolled cigarettes, cigars and pipes).

Inter-temporal agreement

Table 1 summarizes the agreement of the SQ items between the two timepoints, both overall and stratified by sex. Test-retest reliability was high for almost all SQ items.

All 36 subjects of the CC randomization group who responded being daily smokers at the first timepoint confirmed their daily smoking status (100% agreement, 95% CI: 98.6–100.0%) at the second timepoint.

For the 100-cigarettes item (SQ2), 138 out of 139 subjects who reported having smoked 100 cigarettes in their lifetime at the first timepoint confirmed their responses at the second timepoint (99.3% agreement, 95% CI: 97.5–100.0%). One subject claiming not having smoked 100 cigarettes in her lifetime at the first timepoint answered affirmatively at the second timepoint.

With respect to ever regular smoking (SQ3), 137 out of 139

Table 1. Percent agreement and 95 % CIs of the SQ, overall and by sex, assessed at two different timepoints with an interval of six days.

SQ item	Description	Sex	N	% Agreements	95% CI			
SQ1*	Current smoking status	Both	36	100.0	98.6 – 100.0			
		M	21	100.0	97.6 – 100.0			
		F	15	100.0	96.7 – 100.0			
SQ2	100-cigarette lifetime	Both	139	99.3	97.5 – 100.0			
		M	82	100.0	99.4 – 100.0			
		F	57	98.2	94.0 – 100.0			
SQ3	Ever smoked regularly	Both	139	98.6	96.2 – 100.0			
		M	82	97.6	93.6 – 100.0			
		F	57	100.0	99.1 – 100.0			
SQ4	Age of initiation	Both	139	71.2	63.3 – 79.1			
		M	82	72.0	61.6 – 82.3			
		F	57	70.2	57.4 – 82.9			
SQ6*	Total ever quitting period	Both	7	85.7	52.6 – 100.0			
		M	4	100.0	87.5 – 100.0			
		F	3	66.7	0.0 – 100.0			
SQ7	Predominant brand	Both	137	80.3	73.3 – 87.3			
		M	80	76.3	66.3 – 86.2			
		F	57	86.0	76.1 – 95.9			
SQ8a	Daily manufactured cigarettes consumption	<i>Last 3 months</i>	Both	136	68.4	60.2 – 76.6		
			M	81	65.4	54.5 – 76.4		
			F	55	72.7	60.0 – 85.4		
		<i>1 year ago</i>	Both	136	64.0	55.5 – 72.4		
			M	81	66.7	55.8 – 77.6		
			F	55	60.0	46.1 – 73.9		
		<i>5 years ago</i>	Both	137	54.7	46.0 – 63.4		
			M	82	53.7	42.3 – 65.1		
			F	55	56.4	42.3 – 70.4		
		<i>10 years ago</i>	Both	134	58.2	49.5 – 66.9		
			M	80	60.0	48.6 – 71.4		
			F	54	55.6	41.4 – 69.7		
		<i>15 years ago</i>	Both	131	69.5	61.2 – 77.7		
			M	77	68.6	57.8 – 79.8		
			F	54	70.4	57.3 – 83.5		
		<i>20 years ago</i>	Both	131	77.9	70.4 – 85.4		
			M	76	77.6	67.6 – 87.7		
			F	55	78.2	66.4 – 90.0		
		<i>> 20 years ago</i>	Both	130	83.8	77.1 – 90.6		
			M	76	84.2	75.4 – 93.1		
			F	54	83.3	72.5 – 94.2		
		SQ8b	Daily hand-rolled cigarettes consumption	<i>Last 3 months</i>	Both	119	96.6	93.0 – 100.0
					M	74	95.9	90.8 – 100.0
					F	45	97.8	92.4 – 100.0
<i>1 year ago</i>	Both			118	97.5	94.2 – 100.0		
	M			73	97.3	92.8 – 100.0		
	F			45	97.8	92.4 – 100.0		
<i>5 years ago</i>	Both			117	99.1	97.0 – 100.0		
	M			73	98.6	95.3 – 100.0		
	F			44	100.0	98.9 – 100.0		
<i>10 years ago</i>	Both			114	99.1	97.0 – 100.0		
	M			70	98.6	95.1 – 100.0		
	F			44	100.0	98.9 – 100.0		
<i>15 years ago</i>	Both			113	99.1	96.9 – 100.0		
	M			69	98.6	95.0 – 100.0		
	F			44	100.0	98.9 – 100.0		

* Only subjects randomized to the CC group were analyzed.

Table 1. Continued.

SQ item	Description	Sex	N	% Agreements	95% CI		
SQ8b	Daily hand-rolled cigarettes consumption (contd.)						
		<i>20 years ago</i>	Both	113	99.1	96.9 – 100.0	
			M	69	98.6	95.0 – 100.0	
			F	44	100.0	98.9 – 100.0	
		<i>> 20 years ago</i>	Both	112	99.1	96.9 – 100.0	
			M	68	98.5	94.9 – 100.0	
	F	44	100.0	98.9 – 100.0			
SQ8c	Daily cigar consumption						
		<i>Last 3 months</i>	Both	118	98.3	95.6 – 100.0	
			M	74	97.3	92.9 – 100.0	
			F	44	100.0	98.9 – 100.0	
		<i>1 year ago</i>	Both	117	98.3	95.5 – 100.0	
			M	73	97.3	92.8 – 100.0	
			F	44	100.0	98.9 – 100.0	
		<i>5 years ago</i>	Both	117	98.3	95.5 – 100.0	
			M	73	97.3	92.8 – 100.0	
			F	44	100.0	98.9 – 100.0	
		<i>10 years ago</i>	Both	114	98.2	95.4 – 100.0	
			M	70	98.6	95.1 – 100.0	
			F	44	97.7	92.2 – 100.0	
		<i>15 years ago</i>	Both	113	99.1	96.9 – 100.0	
			M	69	98.6	95.0 – 100.0	
			F	44	100.0	98.9 – 100.0	
		<i>20 years ago</i>	Both	113	99.1	96.9 – 100.0	
			M	69	98.6	95.0 – 100.0	
			F	44	100.0	98.9 – 100.0	
		<i>> 20 years ago</i>	Both	112	98.2	95.3 – 100.0	
			M	68	97.1	92.3 – 100.0	
			F	44	100.0	98.9 – 100.0	
		SQ8d	Daily pipes consumption				
				<i>Last 3 months</i>	Both	118	99.2
	M			74	98.6	95.3 – 100.0	
	F			44	100.0	98.9 – 100.0	
<i>1 year ago</i>	Both			118	99.2	97.1 – 100.0	
	M			73	98.6	95.3 – 100.0	
	F			45	100.0	98.9 – 100.0	
<i>5 years ago</i>	Both			118	99.2	97.1 – 100.0	
	M			73	98.6	95.3 – 100.0	
	F			45	100.0	98.9 – 100.0	
<i>10 years ago</i>	Both			115	99.1	97.0 – 100.0	
	M			70	98.6	95.1 – 100.0	
	F			45	100.0	98.9 – 100.0	
<i>15 years ago</i>	Both			114	99.1	97.0 – 100.0	
	M			69	98.6	95.0 – 100.0	
	F			45	100.0	98.9 – 100.0	
<i>20 years ago</i>	Both			114	99.1	97.0 – 100.0	
	M			69	98.6	95.0 – 100.0	
	F			45	100.0	98.9 – 100.0	
<i>> 20 years ago</i>	Both			113	99.1	96.9 – 100.0	
	M			68	98.5	94.9 – 100.0	
	F			45	100.0	98.9 – 100.0	

subjects answered consistently with respect to smoking regularly at both timepoints (98.6% agreement, 95% CI: 96.2–100.0%). Two subjects who responded as being ever regular smokers at the first timepoint did not confirm their responses at the second timepoint.

99 of 139 subjects (71.2% agreement, 95% CI: 63.3–79.1%) provided the same initiation age (SQ4) at

both timepoints. The discrepancies observed in the remaining 40 subjects ranged from 1 to 4 years, except for three subjects who reported initiation ages that differed by more than 10 years. More than half of the subjects (24 of 40 subjects) reported an older initiation age at the second timepoint, the mean difference being 0.8 ± 4.2 years between the two timepoints.

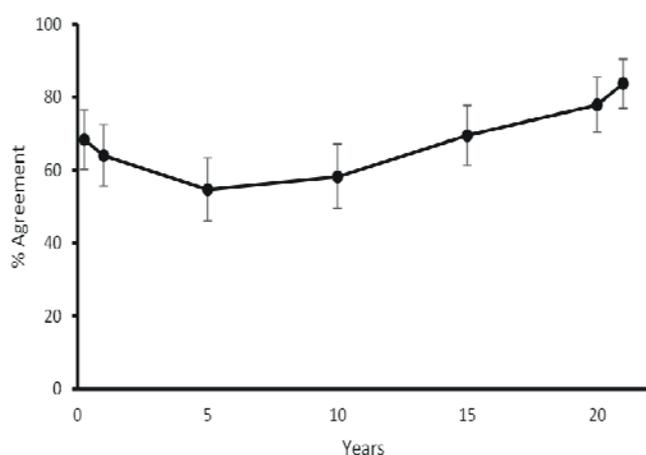


Figure 1. Percent agreement and 95% CIs of daily manufactured cigarette consumption (SQ8a) over seven periods in the past.

Only 7 subjects of the CC randomization group responded at both timepoints to the total ever quitting period item SQ6. The mean of the ratios of the total quitting times reported at the two timepoints was 1.0 ± 0.8 years.

110 out of 137 subjects (80.3% agreement, 95% CI: 52.6–100.0%) reported smoking the same preferred cigarette brand at both timepoints (SQ7).

Moderate to high reliability (54.7 to 83.8% agreement) was found for daily consumption of manufactured cigarettes (SQ8a). The agreement level varied over the 7 periods in the past, showing a U-shaped pattern (Figure 1). For the most recent period (i.e., last 3 months), the percent agreement was 68.4%, subsequently decreasing over the assessed period up to 5 years in the past to 64% (1 year ago) to 54.7% (5 years ago). For periods further in the past, the percent agreement monotonically increased to 58.2% 10 years ago, 69.5% 15 years ago, 77.9% 20 years ago up to 83.8% for the period more than 20 years ago.

Three subjects responded differently by more than 90 cigarettes per day between the two timepoints for one or more of the 7 assessed periods. Upon excluding the

discrepant answers of these subjects, the percent agreement reliabilities increased slightly by 0.6 to 1.2 percentage points across the assessed periods, now ranging from 55.6 to 84.4%. Likewise the difference in the mean number of cigarettes smoked per day reported at both timepoints decreased substantially from 4–10 cigarettes/day to less than 1 cigarette/day, across the 7 time periods in the past, except for the period of more than 20 years ago, where the difference in means across the two timepoints was 1.2 cigarettes/day (Table 2). After the exclusion of answers diverging by more than 90 cigarettes per day, data from 125 subjects were available for the calculation of pack-years at both timepoints. With on average 11.9 ± 6.8 and 12.1 ± 6.9 pack years for first and second timepoint, respectively, the results were almost identical, which is also reflected by the mean of the pack year ratios of the two timepoints of 1.0 ± 0.3 .

The reduction in variability of responses upon exclusion of the discrepant answers from three subjects is also reflected in the coefficients of variation, decreasing considerably from 0.4–4.9 to 0.4–1.5. The coefficients of variation varied, with larger values occurring as the assessment referred to time periods increasingly further in the past. This is explained by decreases in the average number of cigarettes smoked as the time period in the past increased and by an increase in inter-individual variability. The mean number of cigarettes smoked in the present sample increased from 5–6 cigarettes/day more than 20 years ago to 16–17 cigarette/day during the last 3 months, reflecting an average annual increase of about 0.5 cigarettes/day. This is consistent with the literature, indicating a trend towards higher consumption as smoking duration increases (10).

The degree of heaping in the reported number of cigarettes consumed per day increased from 18 units for the last three months to 52 units for the period 20+ years ago. This 189% increase is essentially attributable to the zero cigarettes per day-category which never occurred for 3 months and for 1 year in the past, and only in 4 responders for 5 years in the past. The frequency then increased to 27 for 10 years in the past and further to 59 (15 years), 79 (20 years) and 90 (20+ years), so accounting for increasing levels of agreement for

Table 2. Point estimates and variability of self-reported average number of manufactured cigarettes smoked per day over seven periods of time in the past, assessed at two different timepoints with an interval of six days.

SQ item	Period	N ^a	Timepoint 1			Timepoint 2		
			Mean	SD	CV	Mean	SD	CV
SQ8a	<i>Last 3 month</i>	134	16.3	5.7	0.4	16.5	5.9	0.4
	<i>1 year ago</i>	134	16.2	6.0	0.4	16.5	5.9	0.4
	<i>5 years ago</i>	135	14.7	7.3	0.5	15.3	7.3	0.5
	<i>10 years ago</i>	132	12.2	8.7	0.7	11.9	8.4	0.7
	<i>15 years ago</i>	129	8.8	9.0	1.0	9.2	9.5	1.0
	<i>20 years ago</i>	129	6.8	9.5	1.4	7.2	9.2	1.3
	<i>> 20 years ago</i>	128	5.1	7.8	1.5	6.3	9.5	1.5

^a Number of subjects having completed the SQ for the respective period at both timepoints. Answers for both timepoints were excluded where these differed by more than 90 cigarettes per day, leading to the exclusion of the answers provided by one subject regarding all 7 periods, the answers provided by another subject for the first period, and the answers provided by a third subject for the last six periods in the past. SD = standard deviation; CV = coefficient of variation. Responses of less than 1 cigarette/day were evaluated as 1 cigarette/day (two subjects for the last 3 months-period).

periods of 10 years and more in the past (Figure 1). Very few subjects consumed hand-rolled cigarettes ($n = 6$), cigars ($n = 7$), and pipes ($n = 2$) three months or more prior to the assessment. Among the subjects who provided responses at the both timepoints, rather greater agreement was found for the inter-temporal comparison of the use of these tobacco products (SQ8b-d), evidently reflecting their zero-inflated frequency distributions (Appendix 4, Table 1). Analyses by sex showed that there was less than 3% difference in percent agreement (Table 1) for SQ1–4, while for SQ7 preferred brand was more consistently reported by females (86.0% agreement, 95% CI: 76.1–95.9%) than by males (76.3% agreement, 95% CI: 66.3–86.2%). Analyses by age group showed that the test-retest reliability of SQ1–3 differed by less than 10%. Larger variations (10–25% difference) were found for the items on age of initiation, preferred brand and daily tobacco consumption (Appendix 4, Table 1). For example, subjects aged 30–39 years reported initiation age (83% agreement) more consistently compared to other age groups (64–68% agreement). Lower consistency was found for subjects aged 40–49 years regarding preferred brand (55% agreement) compared to other age groups (75–94% agreement).

Inter-instrument agreement

Table 3 presents the SQ versus BRFSS 2011 comparison. For current smoking status, assessed in subjects of the CC randomization group, agreement between SQ1 and BRFSS Q2 was 100% (95% CI: 98.5–100.0%, $n = 34$) at the first timepoint and 97.5% (95% CI: 91.4–100.0%, $n = 40$) at the second timepoint.

For the 100-cigarettes criterion, agreement between the two questionnaires was 98.6% (95% CI: 96.4–100.0%, $n = 144$) at the first timepoint and 100% (95% CI: 99.7–100.0%, $n = 153$) at the second timepoint.

Meta-questionnaire

Analyses were conducted in subjects who completed both the SQ and meta-questionnaire at the first ($n = 148$) and second timepoint ($n = 153$). More than 90% agreed that the SQ captures the smoking history and behavior completely (Table 4). The majority of subjects (> 96%) agreed that the SQ was self-explanatory and easy to use. The average SQ completion time was faster at the second timepoint (3.1 ± 1.9 min) than at the first timepoint (3.7 ± 2.2 min). Only 14 subjects provided comments, which mostly were related to concerns regarding the correct recall of relevant information ($n = 5$).

DISCUSSION

The results demonstrate high test-retest reliability for most of the smoking behavior-related items of the SQ. Consistent with the literature, smoking status and age of initiation were most reliably reported (11–15), most likely related to potentially salient events and facts being recalled more reliably than less memorable ones (11, 14). Preferred brand was reliably reported as well.

Daily cigarette consumption history was less reliably reported, which is consistent with the literature (11). People usually do not categorize information precisely by month or year, and occurrences of regular and mundane events are generally not accurately remembered. The test-retest reliability of daily cigarette consumption displayed a U-shaped pattern over time, with best agreement found for periods 20 or more years in the past. The tendency of reporting the smoking of multiples of 5 or 10 cigarettes per day (heaping) could lead to underestimating within-subject variability (16) and can artificially increase the percent agreement of the reported consumption, progressively over

Table 3. Percent agreement and 95% CIs of the SQ versus BRFSS, assessed at two timepoints with a six day interval.

Comparison	Description	N	Timepoint 1 % Agreement (95% CI)	N	Timepoint 2 % Agreement (95% CI)
SQ1 vs. BRFSS Q2*	Daily smoking	34	100.0 (98.5 – 100.0)	40	97.5 (91.4 – 100.0)
SQ2 vs. BRFSS Q1	100-cigarettes-lifetime	144	98.6 (96.4 – 100.0)	153	100.0 (99.7 – 100.0)

* Only the subjects randomized to the CC group were analyzed.

Table 4. Responses to meta-questions at two different timepoints with an interval of six days.

Question	Description	N	Timepoint 1 Estimate	95% CI	N	Timepoint 2 Estimate	95% CI
1	Completion time [min; Mean]	147	3.7	3.3 – 4.0	149	3.1	2.8 – 3.4
2	SQ capture smoking behavior completely [%]	148	91.2	86.6 – 95.8	151	90.1	85.2 – 94.9
4	SQ captures smoking history completely [%]	148	93.2	89.2 – 97.3	151	90.1	85.2 – 94.9
6	SQ was self-explanatory [%]	148	98.0	95.7 – 100.0	151	96.7	93.8 – 99.6
7	SQ was easy to use [%]	147	99.3	98.0 – 100.0	152	96.7	93.8 – 99.6

the period of 10 or more years in the past. The phenomenon coincides with the gradual reorganization of cognitions from episodic to semantic representation, comprising a partial loss of the capacity to remember particular events and details, and the abstraction of gist memories (17). In the present study heaping was, however, due to the increase of zero cigarettes per day-frequencies, mainly 10 and more years in the past. Instead of being an effect of altered recall, the increasing agreement over that period appears to have been mainly driven by more and more subjects not having smoked in the more distant past. Another factor that could theoretically contribute to the percent agreement increasing for 10 years and more in the past is the phenomenon of increased recollection of autobiographical events from 10 to 30 years of age. This "reminiscence bump" has been robustly demonstrated in a large number of studies (18). While the underlying cognitive processes are not fully understood to date it cannot be explained by age-related changes in encoding, transformation and recall of memories (18). The slightly above 38 years average age of our sample shifts the inter-temporal maximum daily consumption-agreement at periods 20 or more years in the past, to just cover this early adulthood autobiographic memory recall peak. The decline in reliability over the more recent period of up to 5 years in the past could reflect time-dependent long-term declarative memory decay. The retention curve for specific facts, according to COHEN and STANHOPE (19) declining to 65 percent after three years and then stabilizing, is consistent with the forgetting of details as seemingly reflected in the initial drop in percent agreement visible in Figure 1. Overall, our findings confirm that the retrospective collection of cigarette consumption is nonlinearly unreliable. While this implies that reported numbers are inevitably biased, there is no reason to believe that this bias would be differential across populations. Thus, standardized assessment, as facilitated by the SQ, still has the important advantage of providing a basis for unbiased comparisons among studies and subgroups.

A few extreme responses related to daily cigarette consumption history were observed in the present study, heavily influencing test-retest reliability, with differences between the two timepoints being more than 90 cigarettes per day. Upon removing the extreme responses, the variation decreased considerably. It is not clear whether the extreme responses are due to the inability or to the unwillingness to provide accurate numbers, or simply to a lack of attention.

Our results show that the test-retest reliability of the SQ varied by age and sex. In the literature, the influence of age and sex on the accuracy of reports of past smoking behavior is controversial. Some studies reported no difference between sexes (14) while other studies reported reliability difference between males and females and between age groups (11, 20).

Although test-retest reliability does indicate repeatability and stability of the responses, it does not necessarily imply the validity of the responses. Thus, concurrent validity was assessed by comparing the information captured by the SQ with that captured by the BRFSS 2011 questionnaire (6) for items close to those used in the SQ. The results show that the information captured with the SQ and the BRFSS 2011 was virtually identical.

Even though no construct validity assessment was conducted in the present study, it has been explicated previously (4) that all WHO 1998 (5) basic definitions of tobacco use are addressed by the SQ. The content assessment of the SQ showed that the subjects agreed that the SQ captured the smoking history and smoking behavior completely. The SQ was found practical and easy to use. Overall, the present work demonstrates that the SQ is a reliable and practical tool for measuring smoking behavior and history.

In this study, percent agreement was deployed for test-retest evaluation. The advantage of the percent agreement statistic is that it is conceptually straightforward, although it has been pointed out that the percent agreement may be artificially inflated in situations where the behavior of interest has a low incidence of occurrence in the population (21), which is, however, not the case in the present context. Prevalence bias is clearly unavoidable as only current smokers were included. This restriction to current smokers also made the use of the kappa coefficient (22) impossible due to structural zero frequencies emerging from the absence of non-smokers (23, 24).

With regard to length of total ever quitting, the results are based on responses from a small sub-sample of 7 subjects, of which 6 provided a consistent quitting duration across the two timepoints, the small number of subjects clearly precluding a conclusive reliability assessment. While additional data might provide a better basis for assessing the SQ's reliability with regard to measuring quitting duration, such information appears to constitute memory contents of a type that is either not stored or not retrieved with a high degree of precision (25, 26). In order to elicit a reliable record of ever quitting duration, comprehensive interviewing, possibly based on previously established biographic timelines, might be a feasible as well as even a necessary method (27), but this is beyond what can be achieved by a brief questionnaire.

In the present work, at both timepoints, the BRFSS 2011 questionnaire was administrated first, followed by the SQ and meta-questionnaire. As it is not clear whether the order of the questionnaires could influence the responses, it might be worthwhile to investigate this question in more detail in the future.

As this study included only current smokers, future studies should assess the SQ also in never and former smokers. In spite of these limitations, the present findings demonstrate that the SQ can accurately capture smoking behavior in current smokers in experimental studies.

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APPENDIX 1

Smoking questionnaire (SQ)

<p>1. What is your current cigarette smoking behavior (including hand-rolled cigarettes)?</p> <p>A Daily smoker (at least one cigarette per day, disregarding religious fasting) <input type="checkbox"/></p> <p>B Occasional smoker (less than one cigarette per day)..... <input type="checkbox"/></p> <p>C Ex-smoker of cigarettes..... <input type="checkbox"/></p> <p>D Non-smoker of cigarettes..... <input type="checkbox"/></p>
<p>2. Have you ever smoked 100 cigarettes or more in your life?</p> <p>A Yes <input type="checkbox"/></p> <p>B No..... <input type="checkbox"/></p>
<p>3. Did you ever smoke cigarettes regularly, i.e., at least 1 cigarette per day?</p> <p>A Yes <input type="checkbox"/></p> <p>B No..... <input type="checkbox"/></p>
<p>4. If you ever smoked cigarettes regularly: At what age did you start to smoke regularly?</p> <p style="text-align: center;">_ _ _ years</p>
<p>5. If you are an ex-smoker of cigarettes: For how long have you quit now?</p> <p style="text-align: center;">_ _ _ years plus _ _ _ months plus _ _ _ days</p>
<p>6. If you ever quit regular cigarette smoking: For how long did you quit altogether? (Please add together any separate periods of quitting)</p> <p style="text-align: center;">_ _ _ years plus _ _ _ months plus _ _ _ days</p>
<p>7. What brand of cigarettes/hand-rolled tobacco did you predominantly smoke in the last 12 months of smoking?</p> <p>Name of brand: _____</p>

8. On average, how many cigarettes / cigars / pipes do/did you smoke per day?

		Manufactured Cigarettes	Hand-rolled Cigarettes	Cigars	Pipes
A	Currently (last 3 months)	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day
B	1 year ago	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day
C	5 years ago	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day
D	10 years ago	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day
E	15 years ago	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day
F	20 years ago	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day
G	More than 20 years ago	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day	<input type="checkbox"/> none <input type="checkbox"/> less than 1 per day _____ per day

Age and sex of the respondent are required for a comprehensive assessment, but are not contained in the questionnaire. It is assumed that this information is obtained separately.

APPENDIX 2

Behavioral Risk Factor Surveillance System Questionnaire 2011 (2011 BRFSS/Final/January 27, 2011) (6)

1. Have you ever smoked 100 cigarettes or more in your life?

NOTE: 5 packs = 100 cigarettes

A Yes

B No [go to 5]

C Don't know/Not sure [go to 5]

D Refused

2. Do you now smoke cigarettes every day, some days, or not at all?

A Every day

B Some days

C Not at all [go to 4]

D Don't know/Not sure [go to 5]

E Refused

3. During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?

A Yes

B No [go to 5]

C Don't know/Not sure [go to 5]

D Refused

4. How long has it been since you last smoked a cigarette, even one or two puffs?

A Within the past month (less than 1 month ago)

B Within the past 3 months (1 month but less than 1 months ago) ...

C Within the past 6 months (3 months but less than 6 months ago)..

D Within the past year (6 months but less than 1 year ago)

E Within the past 5 years (1 year but less than 5 years ago)

F Within the past 10 years (5 years but less than 10 years ago)

G 10 years or more

H Don't know/Not sure

I Refused

5. Do you currently use chewing tobacco, snuff, or snus every day, some days, or not at all?

NOTE: Snus (Swedish for snuff) is a moist smokeless tobacco, usually sold in small pouches that are placed under the lip against the gum.

A Every day

B Some days

C Not at all

D Don't know/Not sure

E Refused

APPENDIX 3

Meta-questionnaire

Question 1 to be answered by investigator

1. How long it takes for the subject to complete the SQ □□ minutes

Questions 2-8 are self-administrated to be answered by subjects

2. Did the SQ capture your smoking behavior completely? A Yes <input type="checkbox"/> B No <input type="checkbox"/>
3. Did the SQ capture your smoking behavior correctly? A Yes <input type="checkbox"/> B No <input type="checkbox"/>
4. Did the SQ capture your smoking history completely? A Yes <input type="checkbox"/> B No <input type="checkbox"/>
5. Did the SQ capture your smoking history correctly? A Yes <input type="checkbox"/> B No <input type="checkbox"/>
6. Was the SQ self-explaining? A Yes <input type="checkbox"/> B No <input type="checkbox"/>
7. Was the SQ easy to use? A Yes <input type="checkbox"/> B No <input type="checkbox"/>
8. Comments (open-end)

APPENDIX 4

Table 1. Percent agreement and 95% CIs of the SQ by age group, assessed at two different timepoints with a six day interval.

SQ item	Descriptions	Age	N	% Agreement	95% CI	
SQ1	Current smoking status	22 – 29	15	90.9	73.0 – 100.0	
		30 – 39	13	82.5	58.0 – 100.0	
		40 – 49	3	90.9	41.7 – 100.0	
		50 – 66	5	81.8	38.0 – 100.0	
SQ2	100-cigarette lifetime	22 – 29	44	100.0	98.9 – 100.0	
		30 – 39	39	100.0	98.7 – 100.0	
		40 – 49	22	100.0	97.7 – 100.0	
		50 – 66	33	97.0	89.6 – 100.0	
SQ3	Ever smoked regularly	22 – 29	44	100.0	98.9 – 100.0	
		30 – 39	40	97.5	91.4 – 100.0	
		40 – 49	22	95.5	84.5 – 100.0	
		50 – 66	33	100.0	98.5 – 100.0	
SQ4	Age started to smoke	22 – 29	44	68.2	53.3 – 83.1	
		30 – 39	40	82.5	69.5 – 95.5	
		40 – 49	22	68.2	46.4 – 89.8	
		50 – 66	33	63.6	45.7 – 81.6	
SQ6	Total quitting duration	22 – 29	2	100.0	75.0 – 100.0	
		30 – 39	2	50.0	0.0 – 100.0	
		40 – 49	1	100.0	50.0 – 100.0	
		50 – 66	2	100.0	75.0 – 100.0	
SQ7	Predominant brand	22 – 29	43	86.0	74.5 – 97.6	
		30 – 39	40	77.5	63.3 – 91.7	
		40 – 49	22	54.5	31.5 – 77.6	
		50 – 66	32	93.8	83.8 – 100.0	
SQ8a	Daily consumption of manufactured cigarettes	<i>Last 3 months</i>	22 – 29	44	70.5	55.8 – 85.1
			30 – 39	40	75.0	60.3 – 89.7
			40 – 49	20	45.0	20.7 – 69.3
			50 – 66	32	71.9	54.7 – 89.0
		<i>1 year ago</i>	22 – 29	44	68.2	53.3 – 83.1
			30 – 39	40	67.5	51.7 – 83.3
			40 – 49	20	55.0	30.7 – 79.3
			50 – 66	32	59.4	40.8 – 78.0
		<u><i>5 years ago</i></u>	22 – 29	44	56.8	41.0 – 72.6
			30 – 39	40	47.5	30.8 – 64.2
			40 – 49	20	60.0	36.0 – 84.0
			50 – 66	33	57.6	39.2 – 76.0
		<i>10 years ago</i>	22 – 29	41	63.4	47.5 – 79.4
			30 – 39	40	55.0	38.3 – 71.7
			40 – 49	21	52.4	28.6 – 76.1
			50 – 66	32	59.4	40.8 – 78.0
		<i>15 years ago</i>	22 – 29	39	82.1	68.7 – 95.4
			30 – 39	40	57.5	40.9 – 74.1
			40 – 49	21	66.7	44.1 – 89.2
			50 – 66	31	71.0	53.4 – 88.6
		<i>20 years ago</i>	22 – 29	38	89.5	78.4 – 100.5
			30 – 39	39	79.5	65.5 – 93.4
			40 – 49	22	68.2	46.4 – 89.9
			50 – 66	32	68.6	51.1 – 86.4
<i>>20 years ago</i>	22 – 29	38	97.4	91.0 – 103.8		
	30 – 39	39	76.9	62.4 – 91.4		
	40 – 49	21	81.0	61.8 – 100.0		
	50 – 66	32	78.1	62.2 – 94.0		

Table 1. Continued.

SQ item	Descriptions	Age	N	% Agreement	95% CI	
SQ8b	Daily consumption of hand-rolled cigarettes	<i>Last 3 months</i>	22 – 29	37	97.3	90.7 – 100.0
			30 – 39	38	97.3	90.7 – 100.0
			40 – 49	16	87.5	68.2 – 100.0
		<i>1 year ago</i>	50 – 56	29	100.0	98.3 – 100.0
			22 – 29	37	100.0	98.6 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	16	87.5	68.2 – 100.0
		<u><i>5 years ago</i></u>	50 – 66	29	96.6	88.2 – 100.0
			22 – 29	37	100.0	98.6 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
		<i>10 years ago</i>	50 – 66	29	100.0	98.3 – 100.0
			22 – 29	35	100.0	98.6 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
		<i>15 years ago</i>	50 – 66	28	100.0	98.2 – 100.0
			22 – 29	34	100.0	98.5 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
		<i>20 years ago</i>	50 – 66	28	100.0	98.2 – 100.0
			22 – 29	34	100.0	98.5 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
		<i>>20 years ago</i>	50 – 66	28	100.0	98.2 – 100.0
			22 – 29	34	100.0	98.5 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
			50 – 66	28	100.0	98.2 – 100.0
SQ8c	Daily consumption of cigars	<i>Last 3 months</i>	22 – 29	37	100.0	98.6 – 100.0
			30 – 39	37	100.0	98.6 – 100.0
			40 – 49	15	86.7	66.1 – 100.0
			50 – 66	29	100.0	98.3 – 100.0
		<i>1 year ago</i>	22 – 29	37	100.0	98.6 – 100.0
			30 – 39	36	97.2	90.5 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
			50 – 66	29	100.0	98.3 – 100.0
		<i>5 years ago</i>	22 – 29	37	100.0	98.6 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	86.7	66.1 – 100.0
			50 – 66	29	100.0	98.3 – 100.0
		<i>10 years ago</i>	22 – 29	35	100.0	98.6 – 100.0
			30 – 39	36	97.2	90.5 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
			50 – 66	28	100.0	98.2 – 100.0
		<i>15 years ago</i>	22 – 29	34	100.0	98.5 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
			50 – 66	28	100.0	98.2 – 100.0
		<i>20 years ago</i>	22 – 29	34	100.0	98.5 – 100.0
			30 – 39	36	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
			50 – 66	28	100.0	98.2 – 100.0
			22 – 29	34	100.0	98.5 – 100.0
		<i>>20 years ago</i>	30 – 39	35	100.0	98.6 – 100.0
			40 – 49	15	93.3	77.4 – 100.0
			50 – 66	28	96.4	87.8 – 100.0
22 – 29	34		100.0	98.5 – 100.0		

Table 1. Continued.

SQ item	Descriptions	Age	N	% Agreement	95% CI
SQ8d	Daily consumption of pipes				
	<i>Last 3 months</i>	22 – 29	36	100.0	98.6 – 100.0
		30 – 39	38	100.0	98.7 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	29	100.0	98.3 – 100.0
	<i>1 year ago</i>	22 – 29	37	100.0	98.6 – 100.0
		30 – 39	37	100.0	98.6 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	29	100.0	98.3 – 100.0
	<u><i>5 years ago</i></u>	22 – 29	37	100.0	98.6 – 100.0
		30 – 39	37	100.0	98.6 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	29	100.0	98.3 – 100.0
	<i>10 years ago</i>	22 – 29	35	100.0	98.6 – 100.0
		30 – 39	37	100.0	98.6 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	28	100.0	98.2 – 100.0
	<i>15 years ago</i>	22 – 29	34	100.0	98.5 – 100.0
		30 – 39	37	100.0	98.6 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	28	100.0	98.2 – 100.0
	<i>20 years ago</i>	22 – 29	34	100.0	98.5 – 100.0
		30 – 39	37	100.0	98.6 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	28	100.0	98.2 – 100.0
	<i>>20 years ago</i>	22 – 29	34	100.0	98.5 – 100.0
		30 – 39	36	100.0	98.6 – 100.0
		40 – 49	15	93.3	77.4 – 100.0
		50 – 66	28	100.0	98.2 – 100.0