

IMPLEMENTATION OF A MODEL OF AWARENESS-RAISING FOR TAXI MOTORCYCLISTS IN BENIN IN RELATION TO HELMET USE: A QUASI-EXPERIMENTAL STUDY

Résumé

Background: This study aims to test the effectiveness of an awareness-raising model designed based on the theory of planned behaviour regarding helmet use for motorcycle taxi drivers.

Methods: This is a quasi-experimental study that took place in the cities of Parakou (intervention group) and Porto Novo (control group). Over a three-month period, a package of awareness-raising activities have been implemented in the intervention area, targeting a group of motorcycle taxi drivers. Data relate to knowledge, attitudes and practices regarding helmet use was collected prospectively before the intervention, at the end, and 6 months later. Stata 15 was used for data analysis. Chi-square or Fisher, Student's or Kruskal-Wallis tests was carried out. The difference-in-difference method was used to determine the specific effect of the awareness activities.

Résultat : Avant la mise en œuvre de l'intervention, les sujets du groupe expérimental avaient score total de connaissances, attitudes et pratiques relatives au port de casque plus élevé que ceux du groupe témoin. Ce score augmentait de 0.2 (0.06 – 0.3) lorsque le nombre de séances suivies augmentait d'une unité ($p=0.005$). L'estimateur de difference-in-difference mesuré parmi les sujets ayant participé à au moins une séance de sensibilisation, en prenant en compte les variables sociodémographiques, note une différence significativement plus élevée de score total des sujets du groupe expérimental comparés à ceux du groupe témoin aussi bien à la fin des séances interactives que six mois après.

Conclusion : Ce modèle pourrait être adapté et appliqué à d'autres groupes socio-professionnels d'utilisateurs à deux roues voire d'autres types d'utilisateurs.

Background

Road accidents are a major public health problem across the world. They are the leading cause of death for young people aged 15 to 29. Apart from the high number of deaths in the economically active population, these accidents also cause disabilities and represent a heavy economic burden for families and countries. Low-income countries account for around 13% of

road deaths (1). In most African countries, the use of vehicles that do not meet key safety standards, the dilapidated state of road infrastructure, and the absence, inadequacy or insufficient enforcement of road safety laws continue to expose road users to fatal road accidents (2, 3). Added to this are the behaviours of road users. One of the main risk factors for road accidents and related trauma is the attitudes and behaviours of users, most notably: speeding; driving under the influence of alcohol or any other psychoactive drug; not wearing a helmet, seatbelt or child restraint; and distracted driving, such as using a mobile phone (1, 4-8). Despite these well-known factors, superstitious drivers are more likely to attribute accidents to fate (9). Although aware of the protection offered by helmets, many motorcycle drivers and passengers do not wear one (10, 11). This situation is all the more worrying, since the most vulnerable road users, such as pedestrians, cyclists and motorcyclists, account for more than half of all road deaths in the African sub-region, according to the World Health Organization (WHO). This figure is an underestimate, due to the poor quality of the data provided by the countries in the region, especially when we consider the rising number of motorcycles and journeys by motorcycle in these countries, which is contributing to the increase in road accidents (1, 12). Accidents cause motorcyclists more limb injuries than head injuries, but the latter are responsible for almost half of all deaths (6). In their meta-analysis, Liu et al. found that wearing helmets reduced the risk of head trauma and death (13). Similarly, in his cross-sectional study, Singleton argues that skull fractures, brain contusions and intracranial haemorrhages were significantly less common among helmeted motorcyclists injured in road crashes than among those not wearing a helmet (14).

In Benin, young people aged 20 to 40 are the group most frequently involved in road accidents. They also account for nearly half of all victims injured or killed in such accidents. In addition, motorcycles are involved in more than half of all accidents, and their drivers or passengers represent more than half of the fatalities (15). In Benin, motorcycles are the main means of travel for road users. The proportion of households that owns a motorcycle continues to grow, rising in ten years from less than 45% in 2001 to more than 55% in 2011 (16). Motorcycle taxi drivers are among those who travel mainly by motorcycle, using this means of transport as a taxi to carry passengers. This mode of transport is mostly used for trips within cities. These motorcycle taxi drivers do not always perceive the risks associated with their profession (17).

According to the WHO and several authors, in low- and middle-income countries, only an approach integrating user behaviour and several other interventions will be able to prevent trauma and death from road accidents in a cost-effective manner (1, 18-21). The main effective

1 interventions are legislative reforms accompanied by political will, and implementing measures
2 (1, 18, 20), such as awareness-raising and education of the population (22), and increased police
3 control (1, 19). Concerning specifically the wearing of helmets, the implementation of helmet
4 legislation seems to be effective in increasing the use of helmets, and reducing head injuries
5 and deaths from road accidents (23-25), even more so if it is accompanied by public awareness
6 and education, which affect user knowledge and attitudes towards helmet-wearing behaviour
7 (22, 26). User knowledge is defined as the state of knowing about helmet wearing, and attitude
8 is understood as users' subjective judgement, specifically their beliefs about the likely
9 consequences of wearing a helmet (27). To ensure behavioural change in individuals, it is
10 necessary to implement educational interventions based on proven theories or models (26-28).
11 According to the theory of planned behaviour (TPB), behaviour is determined by intention,
12 which is the conscious decision to take a certain action. It is guided by a combination of three
13 considerations: attitude, the subjective standard, and the perception of control over behaviour.
14 According to this theory, attitude is the set of people's beliefs regarding the consequences of
15 the said behaviour, multiplied by the evaluation of those consequences. These are the judgments
16 about the desirability of the behaviour and its consequences. The subjective standard is an
17 individual's set of normative beliefs, and his or her motivation to comply with the standards. It
18 is therefore the perceived social pressure to conform or not conform to the behaviour, the
19 considerations of influence, and the opinion of relatives on the behaviour. Perceived
20 behavioural control is the perceived ease or difficulty of performing a given behaviour: the
21 belief in one's ability to succeed in the targeted behaviour. In addition, environmental,
22 demographic and personal factors influence all three types of beliefs (26-29).

23 Benin adopted the law on compulsory helmet wearing for motorcycle drivers and passengers in
24 April 1972, but it was not accompanied by enforcement measures. It was not until 2014 that
25 this law began to be effectively implemented for motorcycle drivers, with mass awareness-
26 raising, police controls and penalties. It is clear, however, that there are still drivers who do not
27 always wear helmets, especially in certain localities of the country. How effective would a
28 helmet awareness programme for motorcycle taxi drivers in Benin be? Would such a
29 programme help to reduce cases of road accident-related traumatic brain injury within this
30 target group? This study aims to test the effectiveness of an awareness model to improve the
31 helmet-wearing behaviour of motorcycle taxi drivers and to help reduce the risk of traumatic
32 brain injury among this target group.

1 **Methods**

2 ***Study framework:***

3 The study took place in two cities in Benin: Porto Novo and Parakou (Figure 1). The experiment
4 was implemented among motorcycle taxi drivers in parks in Parakou (intervention group),
5 while those in Porto Novo did not benefit from the awareness activity package and were the
6 control group (30).

7 ***Type of study:***

8 It was a quasi-experimental study that used control groups and pre-tests (31), which wase
9 conducted with motorcycle taxi drivers. Figure 2 shows an overview of the study scheme.

10 ***Targets and inclusion criteria:***

11 The targets of the study was two groups of motorcycle taxi drivers from Parakou and Porto
12 Novo. The motorcycle taxi drivers in the Parakou group received the awareness activity
13 package, and those from Porto-Novo did not. To be included in this study, motorcycle taxi
14 drivers must be at least 18 years old, had frequented one of the selected parks regularly for at
15 least three months, driven a motorcycle taxi as a main and daily activity, and been willing to
16 participate in the study.

17 ***Sampling and sample size:***

18 Sampling was done at two stages. In each city, the list of the main parks was obtained from the
19 town hall. Two parks were chosen at random from the parks in each city. In each park, the
20 drivers were informed in collaboration with the park managers. Within the parks, convenience
21 sampling was used. All drivers who meet the inclusion criteria were recruited.

22 The minimum sample size calculated was 42 for each zone (intervention, non-intervention) but
23 taking into account the continuity correction and a lost-to-follow-up rate 83 people was
24 recruited in experimental group and 60 in control group.

25 ***Intervention:***

26 This was the implementation of a package of awareness-raising activities in the intervention
27 area, preceded by a series of preparatory activities, such as prioritising key factors, developing
28 messages, and designing tools (30). This package supplemented the helmet-wearing controls,
29 penalties and mass awareness activities carried out in both areas.

The implementation of the awareness-raising activities package involved local communication in the intervention area with interactive awareness sessions on helmet wearing for drivers, and the dissemination of messages through other channels such as banners, stickers for motorcycles, mufflers, keyrings, helmets, motorcycle taxi uniforms, video spots, text messages and direct calls (30).

Data collection:

Data were collected prospectively, before the implementation of the activities, at the end, and six months later. The same data were collected as in the baseline collection, using the same tools. Data collection tools were a questionnaire which was designed based on the TPB (30).

The data collected related to:

General Information:

Socio-demographic data (age, sex, marital status, ethnicity, religion, level of education, average income, number of dependents).

History (how long they have been driving motorcycles and in the motorcycle taxi profession, whether they own their motorcycle, road accidents, number of days of driving per week, average number of hours of driving per day, sanctions for not wearing a helmet).

Knowledge: Five (5) questions (advantages, disadvantages, characteristics of a quality helmet).

Attitudes: Eight (8) questions (perception, judgement related to wearing a helmet).

Subjective norms: Four (4) questions (influence of those around you).

Perceived behavioural control: Three (3) questions (perceived constraints in relation to wearing a helmet).

Intention of wearing a helmet: Four (4) questions (possession of a helmet and reason for purchase, willingness to wear helmet).

Practices of use, and information on the helmet: Six (6) questions (frequency, time/period of wearing of the helmet, mode of use, type and condition of the helmet).

The occurrence of a road accident and traumatic brain injury.

Data processing and analysis:

1 The data collected via KoboCollect were extracted and processed using Excel and Stata 15
2 software. They were analysed using Stata 15 (30).

3 When analysing the baseline data, the study population was described according to their socio-
4 demographic data and the number of interactive sessions in which they had participated. The
5 subjects included in the initial data collection, but who do not respond to the other collections,
6 were compared with the respondents in order to verify the existence of a bias. These
7 comparisons were made using the Chi² test after checking that the conditions were met (the
8 expected values ≥ 5). If the conditions were not met, we used Fisher's exact test.

9 The actual data analysis compared subjects not excluded from the intervention group with those
10 from the control group. An overall score for level of knowledge, attitude and practice was be
11 calculated for each individual. This overall score was obtained from the scores of the different
12 groups of variables (knowledge, attitudes and practices). Scores were calculated by assigning
13 points to each response given by the enrolled subject. The total points was calculated to keep
14 the score for each group of variables. These scores varied as follows, by group of variable:
15 knowledge (0 to 14), attitudes (0 to 24), subjective norms (2 to 13), perceived behaviour control
16 (0 to 1), intention (1 to 17) and practices (0 to 28).

17 Average scores was calculated by zone (intervention and control) for each collection.
18 Comparisons was made between the mean scores of pre- and post-awareness, intervention and
19 control areas, and according to socio-demographic characteristics. Student's statistical test was
20 used for these comparisons.

21 After this preliminary analysis, the difference-in-difference (DD) estimator, an approach using
22 a linear parametric model, was used (32) to determine the specific effect of the awareness-
23 raising activities in order to assess whether these have brought any added value. This estimator
24 was the difference in mean overall score in the intervention group before and after the
25 awareness-raising activities, from which the same difference is subtracted in the control group.
26 It corresponds to the coefficient β_3 of the regression equation $Y_i = \beta_0 + \beta_1 T_i + \beta_2 t_i +$
27 $\beta_3 (T_i * t_i) + \lambda X_{it} + \varepsilon_i$ in which Y_i was the overall score of the subjects, T_i the groups
28 (intervention and control), t_i the period (pre- and post-intervention), X_{it} the variables related to
29 the socio-demographic characteristics and background of the subjects, and ε_i the random error.

30 The significance level of the statistical tests was 5%.

31 Results

1 *Maintien des sujets ans la cohorte*

2 Le maintien des sujets dans la cohorte, surtout dans la zone quasi-expérimentale a été très
3 difficile malgré tout le dispositif mis en place pour assurer la participation des sujets enrôlés
4 aux séances de sensibilisation et aux collectes de données. La figure 1 montre le nombre de
5 sujets enquêtés à chaque collecte.

6 Une comparaison a été faite entre les sujets initialement enrôlés qui n'ont plus participé aux
7 collectes suivantes et le reste de la cohorte afin de voir s'ils présentent des caractéristiques
8 spécifiques pouvant induire des risques de biais. Il n'y avait pas de différence entre les deux
9 groupes (tableau 1).

10 *Caractéristiques sociodémographiques des sujets*

11 Tous les conducteurs de taxi-moto étaient des hommes dans les deux zones. Il n'y avait pas de
12 différence entre les deux groupes selon leur âge, l'ancienneté dans la profession et le revenu
13 moyen journalier. Toutefois, comparés aux conducteurs de la zone témoin, ceux du groupe
14 d'intervention avaient plus de célibataires, propriétaires de la moto, un niveau d'instruction plus
15 élevé, moins de personnes à charge et plus d'antécédents d'accidents de la route (tableau 2).

16 *Suivi des séances de sensibilisation*

17 Le nombre total de séances de sensibilisation réalisé était de sept au lieu de quatre planifié. En
18 effet lors de la mise en œuvre les conducteurs ont souhaité que les séances interactives se
19 réalisent toutes les deux semaines au lieu de trois. Le nombre maximal de séances suivies est
20 de sept. Le nombre médian de séances suivi par les participants était une séance. Toutefois, 31
21 sujets (31.9%) avaient suivis trois séances ou plus. Le score total de connaissances, attitudes et
22 pratiques relatives au port de casque chez les conducteurs de taxi-motos du groupe expérimental
23 augmentait de 0.2 (0.06 – 0.3) lorsque le nombre de séances suivies augmentait d'une unité
24 ($p=0.005$).

25 *Evolution des scores par groupes*

26 Les données collectées avant la mise en œuvre de l'intervention montrent que les sujets du
27 groupe expérimental avaient des niveaux de connaissances et attitudes plus élevés que ceux du
28 groupe témoin et leur score total était également significativement plus élevé. Toutefois, la
29 proportion de sujets ayant un contrôle comportemental perçu était plus élevé dans le groupe
30 témoin. On note une augmentation du score total aussi bien dans le groupe expérimental que
31 dans le groupe témoin après la mise en œuvre de l'intervention à T1 comme à T2 mais le gain

1 était plus élevé dans le groupe expérimental. L'amélioration de score dans le groupe
2 expérimental concernait l'attitude et la pratique, ce qui n'a pas été le cas dans le groupe témoin
3 (tableau 3).

4 *Estimateur de difference-in-difference*

5 L'estimateur de difference-in-difference a été mesuré dans l'ensemble des sujets du groupe
6 expérimental puis parmi les sujets ayant participé à au moins une séance de sensibilisation.

7 Lorsqu'on considère les sujets du groupe expérimental sans considérer la participation aux
8 séances interactives, en prenant en compte les variables sociodémographiques, on ne note pas
9 une différence significative de score total de connaissances, attitudes et pratiques relatives au
10 port de casque entre les sujets du groupe expérimental et ceux du groupe témoin de T0 à T1
11 (tableau 4). Par contre, parmi les sujets ayant participé à des séances de sensibilisation cette
12 difference-in-différence devient significative (tableau 5).

13 En prenant en compte les variables sociodémographiques, la difference-in-difference entre le
14 groupe contrôle et le groupe expérimental est significative entre la période T0 et T2 aussi bien
15 pour l'ensemble des sujets du groupe expérimental (tableau 4) que pour les sujets ayant
16 participé aux séances de sensibilisation (tableau 5).

18 **Discussion:**

19 La présente étude vise à apprécier l'efficacité d'un modèle de sensibilisation sur le port de
20 casque chez les conducteurs de taxi-motos au Bénin, basée sur la théorie de comportement
21 planifié. L'expérimentation a montré une amélioration significative du score total dans le
22 groupe expérimental aussi bien immédiatement après les séances interactives que six mois
23 après. Aussi, plus les sujets participants aux séances interactives, plus leur score total augmente.
24 Ces résultats prouvent que la mise en œuvre du paquet d'activités de sensibilisation a amélioré
25 le comportement des conducteurs de taxi-moto de la zone expérimentale relatif au port de
26 casque. Une observation similaire a été faite chez les élèves adolescents au Royaume-Unis
27 (27). Des auteurs avaient obtenu des résultats similaires en Iran en ce qui concerne le
28 comportement des ouvriers de cimenterie face au port de casque (26). Poulter et al, quant à eux,
29 avait obtenu un effet global significatif mais faible de l'intervention éducative concernant le
30 comportement de se conformer au code de la route chez les étudiants pré conducteurs. Ils
31 n'avaient pas observé le maintien de ces scores 5 mois après l'intervention (33).

1 Les résultats montrent que la participation aux séances interactives améliorait le score total des
2 sujets. Cette observation pourrait expliquer la différence significative de score total notée après
3 la mise en œuvre de l'intervention entre les deux groupes. La différence significative de score
4 six mois après la fin des séances inter actives pourrait s'expliquer par le fait que les conducteurs
5 avaient continué à être exposés aux messages à travers les banderoles laissées sur place au
6 niveaux des parcs, les spots vidéos qui continuent de circuler et les gadgets distribués.

7 Dans notre étude, après la mise en œuvre de l'intervention, on observe une augmentation de
8 tous les scores du groupe expérimental comparé au groupe témoin, mais c'est seulement celui
9 de la pratique qui était passé d'une différence non significative à une différence significative.
10 On ne note donc pas une différence significative entre le groupe d'intervention et le groupe
11 témoin en ce qui concerne les scores de normes subjectives, le contrôle comportemental perçu
12 et l'intention. Cette observation diffère de celles de Quine et al qui ont observé que les
13 croyances et intentions comportementales, normatives et de contrôle des participants à
14 l'intervention sont devenues plus positives que celles des participants du groupe témoin, et
15 l'effet s'est maintenu dans le temps (27). Jafaralilou et al., quant à eux avaient obtenu dans le
16 groupe expérimental une amélioration significative de tous les scores : utilisation du casque,
17 l'attitude, la norme subjective, le contrôle comportemental et l'intention (26).

18 La proportion de sujet ayant obtenu le score 1 pour le contrôle comportemental perçu est passé
19 de 0% à 94.9% puis à 98.2% dans le groupe expérimental. Pour Ali et al., le contrôle
20 comportemental perçu était le prédicteur le plus fort de l'intention de port du casque, suivi par
21 les normes subjectives et l'attitude (34).

22 Une amélioration du score total de connaissance, attitudes et pratiques relatives aux port de
23 casque a été observé dans les deux groupes, ceci pourrait s'expliquer par les activités menées
24 dans le cadre de la sécurité routière en dehors de l'intervention.

25 Limites :

26 La forte déperdition dans le groupe expérimental constitue une limite dans cette étude.
27 L'enrôlement de nouveaux sujets à la deuxième collecte a permis d'obtenir une taille limite
28 pour les analyses surtout à T2.

29 The subjects included in this study by convenience sampling, may not be representative of the
30 overall population of motorcycle taxi drivers. In addition, not all the motorcycle taxi drivers
31 included in the intervention group reached with all the interactives sessions.

Conclusion

As research in the field of road accident prevention is rare in Benin, this study help fill a significant gap. It provide factual data on the rate of helmet use among motorcycle taxi drivers and on their KAP relating to helmet use. Elle montre l'efficacité des activités de sensibilisation ciblant des groupes spécifiques et basées sur des théories ayant fait leur preuve telle que la TPB.

Afin d'induire le comportement du port permanent du casque sur moto par les conducteurs de taxi-moto, ce modèle d'intervention pourrait être reproduit dans plusieurs groupe de taxi-motos. Il pourrait aussi être adapté et appliqué à d'autres groupes socio-professionnels d'utilisateurs à deux roues voire d'autres types d'utilisateurs.

List of abbreviations:

CNSR: National Centre for Road Safety

DD: Difference in Difference

KAP: Knowledge, Attitudes and Practices

TPB: Theory of planned behaviour

WHO: World Health Organization

Declarations

Ethics approval and consent to participate:

This study is part of a doctoral thesis. The thesis project is being submitted to the ethics committee of the University of Parakou (Benin) and approval has already been received. In addition to the opinion of the ethics committee, an administrative letter will be sent to local authorities to inform them of the study and about their contribution. Before the start of the study, the interested parties and the objectives of this study will be explained to those involved. Free and informed written consent from the subjects to be investigated will be obtained. Confidentiality will be required of any person involved in the collection or management of data, who will have access, for the purposes of the collection, to the personal data of the subjects enrolled. No personal data will be disseminated.

Consent for publication:

Not applicable.

Availability of data and materials:

The data and materials for this study will be available from the corresponding author. To access this data, contact the main author.

Competing interests:

The authors state that there is no conflict of interest.

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Author's contributions:

BHDS designed the study and wrote the article. DD, AK, YGA and YC assisted in the design of the study and the amendment of the article. AL and E-MO amended the article.

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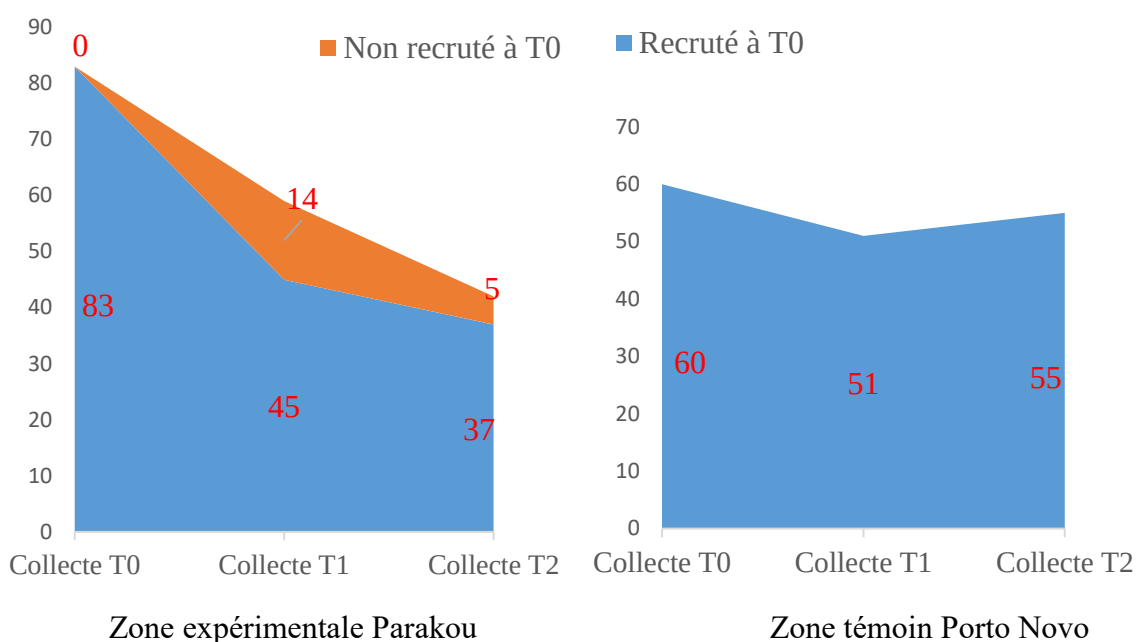
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Figure Captions

Figure 1: Location of the study. Departments and administrative boundaries of Benin. Study departments are marked in different colours. Red stars represent study cities. Data sources: DGI/MIT Benin and GADM.org. Copyright holder: BHDS

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Figure 1 : Nombre de sujets ayant participé à chaque collecte

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Tableau 1 : Comparaison des répondants et non répondants

Variables	Répondants (n=124)	Non-répondants (n=33)	p-value
Statut matrimonial			0.792
Célibataire	8.9	6.1	
Mariés ou fiancés	90.3	93.9	
Divorcés ou veufs	0.8	0.0	
Niveau d'instruction			0.536
Aucun	33.1	30.3	
Primaire	33.9	21.2	
Secondaire	24.2	36.4	
Universitaire	8.9	12.1	
Revenu moyen journalier			0.604

<i>Variables</i>	Répondants (n=124)	Non-répondants (n=33)	p-value
<i>< 1500</i>			
<i>1500 - 5000</i>			
<i>5000 - 10000</i>			
Nombre de personnes à charge			0.681
<i><= 3 personnes</i>	22.6	27.3	
<i>4 à 6 personnes</i>	36.3	36.4	
<i>7 personnes et plus</i>	41.1	36.4	
Ancienneté dans la profession			0.154
<i>< 1 an</i>	4.8	6.1	
<i>1 – 4 ans</i>	28.2	15.1	
<i>5 – 9 ans</i>	21.0	12.1	
<i>>= 10 ans</i>	46.0	66.7	
Propriétaire de la moto			0.114
<i>Oui</i>	75.0	87.9	
<i>Non</i>	25.0	12.1	
Antécédents d'accidents			0.878
<i>Jamais</i>	52.4	54.6	
<i>1 fois</i>	29.8	24.2	
<i>2 – 3 fois</i>	14.5	18.2	
<i>4 fois et plus</i>	3.2	3.0	
Age	39.2(11.0)	43.4(13.2)	0.053

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2 Tableau 2 : Caractéristiques sociodémographiques des sujets

<i>Variables</i>	Zone expérimentale (n=97)	Zone témoin (n=60)	p-value
Sexe			
<i>Masculin</i>	100	100	
Statut matrimonial			0.006
<i>Célibataire</i>	13.4	0.0	
<i>Mariés ou fiancés</i>	86.6	98.3	
<i>Divorcés ou veufs</i>	0.0	1.7	
Niveau d'instruction			0.000
<i>Aucun</i>	18.6	55.0	
<i>Primaire</i>	26.8	38.3	
<i>Secondaire</i>	39.2	6.6	
<i>Universitaire</i>	15.5		
Revenu moyen journalier			0.604
<i>< 1500</i>	2.1	1.7	
<i>1500 - 5000</i>	88.7	93.3	
<i>5000 - 10000</i>	9.3	5.0	
Nombre de personnes à charge			0.037
<i><= 3 personnes</i>	30.9	11.7	
<i>4 a 6 personnes</i>	34.0	40.0	
<i>7 personnes et plus</i>	35.1	48.3	
Ancienneté dans la profession			0.916
<i>< 1 an</i>	5.2	5.0	

<i>Variables</i>	Zone expérimentale (n=97)	Zone témoin (n=60)	p-value
<i>1 – 4 ans</i>	26.8	23.3	
<i>5 – 9 ans</i>	17.5	21.7	
<i>>= 10 ans</i>	50.5	50.0	
Propriétaire de la moto			0.000
<i>Oui</i>	92.8	53.3	
<i>Non</i>	7.2	46.7	
Antécédents d'accidents			0.035
Jamais	44.3	66.7	
1 fois	36.1	16.7	
2 – 3 fois	16.5	13.3	
4 fois et plus	3.1	3.3	
Age	41.2(10.2)	39.1(12.4)	0.275

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1 Tableau 3 : Evolution des scores par groupe et par périodes

Scores	T0			T1			T2		
	Intervention (n=83)	Contrôle (n=60)	p-value	Intervention (n=59)	Contrôle (n=51)	p-value	Intervention (n=42)	Contrôle (n=55)	p-value
Connaissance	9.4(2.1)	7.7(1.7)	0.000	9.5(1.8)	7.9(2.2)	0.000	9.3(1.9)	7.4(2.1)	0.000
Attitude	18.7(1.9)	17.4(2.4)	0.001	19.7(1.6)	19.2(1.5)	0.104	20.0(1.4)	18.2(1.6)	0.000
Normes subjectives	8.5(2.3)	7.9(2.0)	0.140	9.4(2.2)	8.6(2.3)	0.081	9.7(2.0)	9.8(2.4)	0.834
Contrôle comportemental perçu	0.0	6.7	0.017	94.9	100.0	0.103	98.2	95.2	0.407
Intention	14.2(2.1)	14.7(1.1)	0.134	16.0(1.6)	16.1(1.0)	0.753	16.1(1.5)	16.1(1.2)	0.945
Pratique	17.4(2.2)	16.5(3.0)	0.062	18.6(3.1)	16.0(2.9)	0.000	19.9(1.9)	16.1(2.0)	0.00
Score total	68.1(5.7)	64.3(4.6)	0.000	74.2(4.6)	68.8(5.0)	0.000	75.8(4.1)	68.4(5.8)	0.000

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1 Tableau 4 : Résultats des estimations de difference-in-difference prenant en compte les
2 covariables sans prise en compte de la participation aux séances interactives

<i>Score total</i>	Intervention		Contrôle		Diff (I-C)	p-value
	Effectif	Moyenne	Effectif	Moyenne		
T0	83	68.4	60	65.0	3.4	0.001
T1	59	75.2	51	70.2	5.0	0.000
Diff-in-Diff T0-T1					1.6	0.210
T0	83	69.0	60	65.8	3.2	0.002
T2	42	76.1	55	69.0	7.1	0.000
Diff-in-Diff T0-T2					3.9	0.007

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4 Tableau 5 : Résultats des estimations de difference-in-difference prenant en compte les
5 covariables en prenant en compte de la participation à au moins une séance interactive

<i>Score total</i>	Intervention		Contrôle		Diff (I-C)	p-value
	Effectif	Moyenne	Effectif	Moyenne		
T0	49	70.2	60	68.0	2.2	0.043
T1	54	78.8	51	73.2	5.6	0.000
Diff-in-Diff T0-T1					3.4	0.011
T0	49	73.8	60	71.7	2.1	0.064
T2	40	81.8	55	74.3	7.5	0.000
Diff-in-Diff T0-T2					5.4	0.000

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