

The Role of Subjective Perceptions in Health Decisions: A Field Experiment among Disadvantaged Youth*

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Abstract

Disadvantaged youth are particularly at risk of under-investing in their health. Costs of healthcare and bias in health needs perceptions are likely to be key factors of under-investment. Relying on a randomized experiment, we find that providing them with personalized information both on public health insurance and on their health status based on a medical diagnosis raises their curative and preventive investments. More specifically, they are more likely to consult a psychologist and to use contraception, while depression and risky sexual behaviors are key issues in this population. In order to distinguish between the two barriers, financial constraints and underestimation of health needs, we also test a program providing information on public health insurance only. This limited program improves their medical coverage in the same way as the combined program, but it does not translate into higher health investments. These findings highlight the importance of taking into account the role of subjective perceptions of health needs when considering health decisions among disadvantaged youth.

JEL Codes: I12, I13, J24 D83

1 Introduction

Health investment decisions have both immediate and long run consequences on a variety of socioeconomic outcomes, including employment, wages, or participation in criminal activities (Dobkin and Nicosia (2009), Schuring et al. (2007)). A vast body of research aims to understand

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the determinants of these decisions, and in particular why disadvantaged subpopulations tend to under-invest in their health. Cost of healthcare being a key determinant of under-investment among low-income people, a lot of attention has been devoted to insurance policies as natural instruments to increase healthcare utilization (Hadley (2003)). There is also a growing literature investigating the non monetary determinants of health investments, in particular the way perceptions of health needs affect investment decisions. While prevention campaigns are generally used to raise awareness about the needs for preventive care, the evidence suggests that their efficacy on low-educated people is very limited (Aizer and Stroud (2010), De Walque (2007)). This paper demonstrates that personalised information programs targeting together medical coverage and health perceptions can significantly raise health investments among disadvantaged youth. Our results suggest that such policies also have a potential for inducing skills formation. The population we target are young job seekers attending public employment agencies targeted to people below age 25 (Youth Job Centers) in France. It is well documented that they have on average a very low level of qualifications, very low level of income, and sometimes experience social or family issues. What is less documented is their state of health, that might also be a barrier to their social and professional integration. In 2006, the French Ministry of Health, the Ministry of Labor and the Head of Youth Job Centers jointly wrote a charter that points at increasing health inequalities between disadvantaged unemployed youth and their better-off counterparts, and formulates four main objectives for Youth Job Centers: improving access to health insurance, to healthcare, to detection and prevention. In recent years, more and more agencies have developed health services such as general practitioners or psychologists intervening inside the center to offer consultations, partnerships with health centers or hospitals, or prevention information campaigns, but little is known on the impact of these initiatives on youth health investments.

The experiment we ran aims at evaluating two possible interventions, one targeting exclusively financial barriers and the other targeting both financial barriers and perception of health needs. In parallel, through the collection of unique data on individualized medical examinations, we also intend to better document health issues faced by this population. The experiment was implemented between 2011 and 2013 in five French job centers, where young people were randomly assigned to one of the two interventions or to the control group. In the first program, we provide information on the different existing insurance options and on application procedures, with a focus on free public health insurance targeted to low-income people¹ and whose take-up is quite low². Although the information we provided is freely available, it may be hard to find and hard to understand, especially for disadvantaged youth. This program aims at promoting better understanding of the different insurance options and hence limit comparison frictions (Kling et al. (2012)) and status quo bias (Samuelson and Zeckhauser (1988), Liebman and Zeckhauser (2008)). It also aims at increasing more specifically the visibility of free public health insurance policy. The overall objective is to help uninsured poor people to get health insurance and hence make healthcare more affordable for them. Financial access to healthcare being a prerequisite for observing change in health investments behavior, we maintain the insurance information component in the second program. Nonetheless, as another key determinant of the decision to invest in one's health is the perception of one's needs, the second program additionally provides personalised information on health status and on the risks people might be exposed to. Underestimation of health needs and risks might particularly affect poor and low-educated people we target since the assessment of one's health, at constant objective health status, is highly correlated with socioeconomic and cultural background. Someone surrounded by people in poor

¹In France, since 2000, the government provides on a means-tested basis a free health insurance that fully covers medical expenditures and exempts from advancing payment.

²Approximately one third of the eligible population do not benefit from it (Cour des Comptes (2015)).

health for example might tend to consider poor health as a normal state and hence under-invest (Sen (2002), Das et al. (2012)). To identify these needs and risks, we asked physicians to diagnose young people health status and practices. A key aspect of this intervention is that the information provided is based on each person's situation and is thus more likely to affect health decisions than general information provided by a media campaign for example. Comparing the impacts of the two programs, our goal is to distinguish between financial barriers to healthcare and health perceptions biases.

The analysis gives rise to five main empirical results. First, the three main health issues diagnosed by the physicians among these disadvantaged young people are risky sexual behavior, for 31% of the examined young people, dental problems, in 30% of the cases, and poor mental health, with depression diagnosed for 14% of the young people. Second, we find that the program combining both insurance and diagnosis information leads to an increase in the take-up of free public health insurance by about 25% and to higher curative and preventive investments. Specifically, young people who received it were significantly more likely to consult a psychologist and to use contraception than the control group. In addition, the recipients of the combined information program have higher probability to undertake job training courses, contributing to skills formation. Third, these improvements do not come along with better health, neither self-rated health nor psychological health measured by Beck scale. Two possible explanations may be put forward. For self-rated health, it could be that two opposite mechanisms are at play, investments may improve health outcomes while in the same time getting information about one's health problems may raise awareness and deteriorate health perceptions. For psychological health measured by Beck scale, we can hypothesize that mental pathologies take some time to be treated, while we measure outcomes at a one-year horizon only. Fourth, the comparison of the combined program with the program providing only insurance information demonstrates that health under-investment among disadvantaged youth is not exclusively a matter of financial access to healthcare. The insurance only program leads to the same increase in the take-up of free public health insurance as the combined program, but does not translate into higher health investments. This result suggests that subjective perceptions of health status play a key role in the decision to invest or not in one's health among this population. Fifth, the increase in the take-up of free public health insurance with the program providing only insurance information tends to confirm that low visibility and complexity of the procedures are strong determinants of its low take-up. If the low take-up of this insurance had been mainly due to the fact that young people do not believe in the utility of being insured, the take-up would have increased only in the combined program providing information on health needs.

This paper mainly relates to three strands of the literature. It contributes first to the literature investigating how subjective perceptions affect individual decisions. In the field of health, numerous papers have focused on the effect of beliefs about HIV status on sexual behaviors. Paula et al. (2014) find for example that variations in the beliefs people have about their HIV status leads to changes in sexual behavior: downward revision of the perceived probability of being HIV positive leads to riskier sexual behavior, while upwards revision leads to safer behavior. Gong (2015) and Boozer and Philipson (2000) shows that HIV testing induce behavioral changes only for people for whom the new information provided by the test contrasts with their prior beliefs about their HIV status. In our analysis, we also find that young people are more reactive to physicians recommendations when they concern health issues whose symptoms are harder to self-diagnose, that is to say when recommendations are likely to contrast with young people prior beliefs. Insofar as disadvantaged youth are likely to face multiple health problems, our program does not target one specific health issue. Instead, it addresses various dimensions of health, from sexual risk behavior to drug use or depression.

A second strand of the literature our paper contributes to is the literature on the take up of social

programs (see [Currie \(2006\)](#) or [Remler et al. \(2001\)](#) for reviews). Low take up of social programs is a broad policy question that concerns not only public health insurance, but also unemployment insurance, college financial aid, disability programs, food stamps or housing benefits. Concerning more specifically the low take-up of public health insurance, [Baicker et al. \(2012\)](#), adopting a behavioral perspective, recommend either to simplify the application process, to make enrollment automatic or to assist people in enrolling. Empirical analysis from [Aizer \(2007\)](#) shows that costs of finding information about the program and costs of completing the application are indeed important determinants of the low take-up of Medicaid, in particular among subpopulations with language and immigration concerns. Our results tend to confirm these findings.

This paper finally contributes to the literature on the impact of insurance on health investments. [Finkelstein et al. \(2012\)](#) find for example that providing access to health insurance for low-income adults in Oregon leads to higher utilization of primary care, hospitalizations but also preventive cares. In the French context, [Buchmueller et al. \(2004\)](#) shows that individuals with supplemental coverage have substantially more physician visits than those without. Focusing on low-income youth, we also find that better medical coverage is associated with higher health investments, but only when people learn about their health needs and the risks they face.

The remainder of the article is organized as follows. Section 2 presents in detail the interventions and the context in which they were implemented, section 3 describes the data collected and the population studied, section 4 develops a simple model of health investment decisions making explicit the way each of the two programs is expected to affect decisions, section 5 presents the econometric framework, section 6 gives the results, section 7 discusses their heterogeneity and section 8 concludes.

2 Interventions

2.1 Context

The experiment was implemented in five Youth Job Centers, which are centers where counselors welcome 16-25 years old unemployed people who come across social and professional integration difficulties. Youth Job Centers provide them with individualized career guidance in order to help them to define a professional project, find a training to acquire adequate skills and ultimately find a job. According to the [CNML](#)³ that coordinates the whole network of Youth Job Centers, approximately 1.4 million people were registered in Youth Job Centers in 2011 in France. At that time, unemployment rate (in the ILO sense) among 15 to 24 years old people was around 22%⁴. Young people attending these centers form a subpopulation sometimes referred to in the media as "Not in Education, Employment or Training" (NEET): they left the education system with very low qualifications on average, they are unemployed and we show that a substantial proportion suffered from personal disruptions during childhood (see section 3.3.1). The role of the Youth Job Centers is thus to help them to acquire job searching skills: how to present a Curriculum Vitae, how to write a motivation letter, where to look for job offers, what type of job their qualifications correspond to, for example. But as observed by more and more Youth Job Centers, an even upstream barrier to social and professional integration for these young people is their poor health and very low use of health care services. Few data are available on this population, to our knowledge, the only survey that investigated this issue is the 2011

³Conseil National des Missions Locales

⁴This figure comes from [INSEE](#)⁵.

CETAF⁶ survey⁷. Based on a sample of more than 4 000 young people attending Youth Job Centers or Community Health Centers, this survey shows that these young people have 1.5 higher risk of suffering from ill-being than active youth under permanent contract, 1.8 higher risk to declare health problems and two times higher rate of suicide attempt. These results echo Currie et al. (2012) who find that young people with disadvantaged socioeconomic backgrounds tend to have worse health, especially mental health, compared to their more advantaged counterparts. In order to tackle these health issues, many Youth Job Centers have developed privileged partnerships with health care structures, depending on the possibilities offered by each territory, or welcome inside the center psychologists or general practitioners typically, but little is known on the impact of the various types of arrangements on youth health investments. The experiment was imagined to evaluate two possible arrangements, one tackling uniquely financial barriers to healthcare, the other tackling both financial barriers and possible biases in the perception of health needs.

2.2 Programs

One primary explanation for why young people with low level of income under-invest in their health is that they cannot afford healthcare services. In France, people can benefit from public basic health insurance either if one member of their household contributes to Social Security (which is compulsory for working people) or, under means testing, they can benefit from free public health coverage (CMU⁸). These two public basic insurances provide only partial reimbursement of healthcare expenditures. For example, for a standard general practitioner visit for which the patient has to pay 23€, they will reimburse 15.10€. The remaining part can be reimbursed by a complementary insurance. Under a given income threshold (720€ per month in 2015), people can benefit from free public complementary insurance (CMU-C⁹) that provides full medical coverage and cash advance exemption¹⁰. The objective of this policy is to reduce financial constraint in the access to health care services for the poorest people. Nonetheless, as mentioned earlier, there is evidence of low take-up (Cour des Comptes (2015)), resulting in a non-negligible share of people being incompletely covered (see section 3.3.2 for detailed statistics among our sample). For people whose income is above the 720€ threshold, they have to pay for a private complementary insurance of their choice to be reimbursed for the remaining part. Each complementary insurance offers different levels of coverage, for different types of healthcare spending. As pointed out by Bhargava et al. (2015) in the U.S. context, misunderstanding of the characteristics of the different plans (mainly due to the sophistication of incentives aimed at discouraging inefficient use of healthcare) leads many people to choose suboptimal plans.

The objective of the first program is to help people obtain optimal medical coverage. It consists in encouraging young people to meet individually a social worker present at the Youth Job Center, whose role is to inform them on the most adequate health insurance given their economic situation, and explain to them the procedures required to obtain it. This intervention also aims at increasing the visibility of CMU-C and reducing the perceived complexity associated with applying to the program. It consists only in information provision, the social worker did not do

⁶Centre Technique d'Appui et de Formation des Centres d'examens de santé

⁷Study "Bien être - mal être ? Mieux vous connaître", December 2011.

⁸Universal (basic) Medical Coverage

⁹Universal Complementary Medical Coverage

¹⁰In 2010, more than four millions people were covered by CMU-C.

the procedures instead of the young people. The functioning of the different types of medical coverage, especially reimbursement process, was also explained to the young people, in order to make sure they understand the benefits of the insurance. Young people could meet the social worker several times during the year of the intervention if needed, but most of them (63.1%) met the social worker only once, as shown in Figure 1.

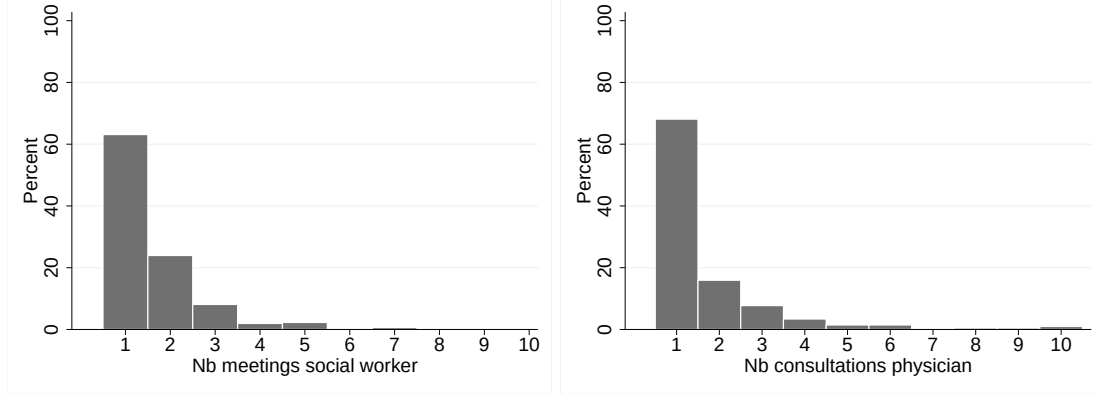
Another possible explanation for low investments in health among disadvantaged young people is that they may have biased or fuzzy perceptions of their health needs and of the risks they face. The need for curative investments might in some cases be self-diagnosed, but when symptoms are difficult to detect, which is particularly the case for psychological health problems, expert diagnosis is required. The objective of the second program is twofold. First the aim is to detect possible untreated health problems, to inform young people on them (if any), and to explain them how to treat them. A second dimension of the program is to detect possible risk behavior, to inform young people on the risks (if any) associated to their behavior, and to explain them how to reduce them. It consists in encouraging young people to see *both* the social worker *and* a physician (present at the Youth Job Center as well) who is in charge of both detection of possible health problems and prevention. We keep the social worker program as a basis in this second program because physician's recommendations are useless if young people cannot afford health investments. The physician intervention is based on an individual diagnosis of the health status of each young people (dental and acuity check-ups, BMI¹¹ measures and psychological health assessment based on the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al. (1997)) and on a diagnostic of practices concerning sexuality, tobacco, alcohol and drug use, based on a series of questions aimed at detecting risk behavior. Based on these two diagnoses, the physician informs each young people on the practitioner(s) to consult if need be (he is not allowed to provide care or prescriptions, he can only direct young people to one practitioner or another¹²), on the risks associated with their practices and on the preventive behavior to adopt in order to reduce the risk of future health troubles¹³. Young people could meet the physician several times during the year of the intervention if needed, but most of them (68.1%) met the physician only once, as shown in Figure 1.

¹¹Body Mass Index

¹²The physician could not take appointments for young people, he was only informing them on which type of practitioner they should consult.

¹³There is evidence that risk information provided by physicians may be efficient in inducing safer behaviors: see Stead et al. (2008) or Kenkel and Terza (2001).

Figure 1: Programs intensity



Both programs are entrusted to experts (a social worker, a physician) and personalized (individual meetings) in order to make the information more salient for young people. They have been designed in accordance with INSERM¹⁴ researchers (who had already implemented a pilot version of the project with the Youth Job Center of Sénart), and with the physicians of the five Youth Job Centers. There was one physician and one social worker per site, who were present on average two days a week in the job center. People assigned to the control group just kept seeing their counselor as any other young people in the Youth Job Center, and as people assigned to one of the programs, but they did not receive any encouragement to meet the social worker or the physician.

2.3 Take-up

The two treatments were only encouragements, there were not mandatory, and no one was excluded from taking them. Randomization was carried out separately in each Youth Job Center at the individual level among the 1528 young people initially present in the experiment (see section 3.1). It resulted in 501 young people assigned to the social worker program, 532 assigned to the combined program involving both a social worker and a physician, and 495 assigned to the control group. The research assistant present in each Youth Job Center was in charge of planning the appointments between young people and the physician and/or social worker for people in the treatment groups just after they answered the initial questionnaire. Then the research assistant had to call them the day before the meeting to remind them about the appointment. In case the young person did not come to the appointment, the research assistant had to call her, ask why she did not come and take a new appointment, and once again in case she did not come to the second appointment. In case the young person was not reachable, the research assistant had to call her up to five times in a period of two weeks, leaving each time a message on the answer phone. Table 1 shows the take-up rate is high for the social worker program, with 82.04% of the people assigned to this program who actually met the social worker. Take up rate for the combined program involving both a social worker and a physician is lower, with 77.63% of the people assigned to this program who met the social worker and 67.29% who met the physician (63.34% met both). No people assigned to the control group met the physician, and only 0.61%

¹⁴Institut National de la Santé Et de la Recherche Médicale

of them met the social worker. 0.20% of the people assigned to the social worker program met the physician.

Table 1: Take-up rates

	SW group	SW+P group	C group
Met physician	0.20 (100%)	67.29 (0%)	0.00 (0%)
Met social worker	82.04 (100%)	77.63 (100%)	0.61 (0%)
N	501	532	495

Note: This table gives for each of the three groups the percentage of young people who met the physician and the social worker. In parentheses are the percentages that we would have expected in case of perfect compliance to random allocation.

In order to understand what characterizes the young people who took the treatment versus those who did not, we compare them along various baseline characteristics for each of the two treatment groups (Appendix A). Among people assigned to the physician and social worker program, those who took the program tend to have slightly less socioeconomic difficulties, with slightly fewer people having stopped school before 16 and slightly fewer people having been placed to social services guardianship as a child (DDASS¹⁵). They also tend to have poorer psychological health, with more people declaring bad psychological health and more people diagnosed as being severely hopeless according to the Beck Hopelessness Scale (Beck et al. (1974)). They also tend to feel more vulnerable to illness, but they are not different in terms of health insurance situation. When we compare people who met the social worker and people who did not among people assigned to the social worker program, we get that people who took the program are less numerous to declare financial difficulties, seem to be in slightly better psychological health, to feel less vulnerable to illness and more optimistic about their future health. Nonetheless they do not statistically differ in terms of insurance.

3 Data and population

3.1 Sampling of the Job Centers and young people

The selection of the five Youth Job Centers who participated to the experiment resulted from the following procedure. First we sent an electronic letter presenting the project and asking to answer a few questions on health services they have (if any) to the 420 existing Youth Job Centers in France. We received 280 questionnaires back, of which 99 Youth Job Centers were volunteer to participate to the experiment. The condition to be eligible was to have a

¹⁵Direction Départementale des Affaires Sanitaires et Sociales

physician working *inside* the Youth Job Center¹⁶. Having a physician inside the Youth Job Center minimizes the costs of the consultation, both in terms of transportation and in terms of time, which may be significant barriers if people have low expectations on the benefits of the consultations. This was a way to maximize the take up of the program. Among the 99 Youth Job Centers who were volunteer to participate to the experiment, only five had a physician working *inside* the Youth Job Center. These five Youth Job Centers are distributed over the whole territory (Clichy-sous-Bois, Poitiers, Reims, Sénart and Toulouse) and reflect a certain diversity (cities of different sizes, different regional economic contexts), but they are five Youth Job Centers that are particularly involved in youth health issues, thus they are not representative of the 420 Youth Job Centers.

Inside these five Youth Job Centers, the selection of the young people who participated to the experiment resulted from the following procedure. First, we identified thanks to the Youth Job Centers recordings all the young people who came for the first time at least twice to the Youth Job Center in a period of four months. This was motivated by the fact that we did not want to include people who would come only once to the Youth Job Center and never come back again, who would have been very hard to convince to answer the survey and see the social worker or physician. We thus identified 3 555 young people in the five Youth Job Centers. Then we excluded young persons who had a illness requiring immediate intervention and persons who did not speak French sufficiently well to understand the questionnaires, 7% of the 3 555 young people were excluded on these two criteria. For the remaining young people, the research assistants present in each Youth Job Center had to call them to present the survey (in a standardized way, see Appendix B) and ask them whether they would agree to participate to the experiment¹⁷. 11% of them explicitly refused to participate to the experiment and 34% were impossible to reach (after five calls with messages left on the answer phone in a period of two weeks), which we interpret as implicit refusal. Finally, 5% of the young people were randomly excluded because the research assistants were overwhelmed. The sample was thus finally made of 1 528 young people, who are likely to be the least marginalized since we excluded people with great difficulties in French and people who explicitly or implicitly refused to participate to the experiment (which represent 45% of the initially eligible youth). The consequence on the external validity of our results is that they might not be generalizable to young people who have the most severe social and professional integration problems, they are generalizable to young people who attend regularly the Youth Job Center. But if the programs were generalized, this is the population who would benefit from them.

Power calculations suggest this number of observations, for a level of statistical significance of 5% and power of 80%, would allow to detect effects as small as 0.175 standard deviation when we compare physician and control groups, 0.177 standard deviation when we compare social worker and control groups and 0.174 standard deviation when we compare physician and social worker groups. These MDE¹⁸ are considered as a "small" effects (Cohen (1988)) and thus justified the continuation of the experiment.

¹⁶Many Youth Job Centers work with physicians but they practise outside the Youth Job Center, typically in a hospital or in an association that established a partnership with the Youth Job Center, and counselors send young people to these places.

¹⁷If they agreed, they had then to sign an agreement letter.

¹⁸Minimum Detectable Effect

3.2 Data collected

The first type of data we collected comes from questionnaires the 1 528 young people answered face to face with a research assistant (one research assistant per Youth Job Center). We first surveyed them at the very beginning of the experiment, in 2011, before they knew which group they would be assigned to, and we again surveyed them one year later, after the interventions took place. In these questionnaires, we ask young people about several aspects of their everyday life such as family, neighborhood, holidays, money issues, housing, sport and cultural activities. We also ask them a set of questions aiming at capturing their level of social integration such as their number of friends, their feeling of discrimination, the support they have from close relatives, their level of confidence in various institutions (school, police, media, justice, government, health system, political parties). Finally we asked them a set of questions aiming at capturing their health status (perceived health and vulnerabilities¹⁹, mental health²⁰) as well as questions on their relation to medical services (number of consultations and healthcare foregoing over the past year, trust in medical institutions)²¹.

A precise protocol was established in order to maximize response rates to the follow-up survey. First, between the baseline and the endline surveys, research assistants had to establish a contact (a call or a short discussion in the job center) with each young people at least every three months in order to remind them about the experiment. Then three weeks before the date when the young person was supposed to answer the final questionnaire (i.e. one year after she answered the initial questionnaire), the research assistant had to contact her to take an appointment for answering the final questionnaire. If the young person was not reachable after four calls (on different days of the week and at different moments of the day) and had no appointment planned with a counselor at the job center in the forthcoming weeks, the research assistant tried other ways of reaching the person (the second phone number or the email she had to provide at the beginning of the experiment, and then online networks such as Facebook, LinkedIn, Badoo, etc.).

The second type of data we have were collected by the physicians and the social workers only for young people they met as part of the experiment. The physicians had to make an assessment of the state of health of the young person (height, weight, dental state, acuity, depression diagnosis based on the MINI²² (Sheehan et al. (1997))) and of her health practices (alcohol, tobacco and drug use, sexuality) and to report the medical practitioners he recommended the young person to meet (general practitioner, dentist, optician, psychologist, gynecologist, dermatologist...) or the medical analyses he recommended her to do (blood test, radiography). The social workers also had to report the medical coverage of the young persons they met before implementing the program.

All the questionnaires and reporting materials have been conceived in accordance with INSERM researchers and physicians of the five Youth Job Centers.

¹⁹Health Perceptions Questionnaire (Ware Jr (1976))

²⁰Beck Hopelessness Scale (Beck et al. (1974))

²¹A complete list of the variables can be found Appendix C).

²²Mini-International Neuropsychiatric Interview

3.3 Description of the population

3.3.1 Declaration data (full sample)

Disadvantaged socioeconomic background

As already mentioned, young people attending Youth Job Centers tend to cumulate socioeconomic difficulties, such as low level of education, financial difficulties and often poor family background. In order to better appreciate the specificity of this population, we compare our statistics to [SIRS](#)²³ 2010 survey, which is representative of people living in disadvantaged neighborhoods in Paris area²⁴. Table 2 indicates that in our sample, 47% of the young people have diploma inferior to high school, compared to 30% in [SIRS](#) (and 29% in the general French population of 20 to 24 year-old people in 2011 according to [INSEE](#)) and 33% declares they have difficulties to read or write French. These low skills are likely to reduce their labor market prospects, but the literature suggests that low educated people are also likely to have lower health investments ([Cutler and Lleras-Muney \(2010\)](#)), to be less responsive to health information campaigns ([Aizer and Stroud \(2010\)](#), [De Walque \(2007\)](#)), and to be less informed ([Lange \(2011\)](#), [Kenkel \(1991\)](#)). Table 2 also shows that 30% of them declare they have financial difficulties (that is twice more than in [SIRS](#)), which also tend to be associated with lower use of healthcare and preventive care services ([Devaux \(2015\)](#), [Van Doorslaer et al. \(2006\)](#)).

A growing number of epidemiological studies highlight the importance of other determinants of healthcare use such as personal social histories, that have rarely been considered in the literature. [Bazin et al. \(2005\)](#) show that people who faced serious social disruptions during childhood such as being placed under social services guardianship, having serious financial or housing difficulties, being convicted by justice, trying to commit suicide, tend to have low use of health care services. Here again, our sample of young people has been more exposed to striking events during childhood than [SIRS](#) young people. Table 2 shows that 8% of the young people in our sample declare they have been placed to social services guardianship as a child ([DDASS](#)), 26% declare their parents had serious financial difficulties (compared to 15% in [SIRS](#)), 9% of them declare serious housing difficulties (close to [SIRS](#)), 33% declare their parents had serious health problems (20% in [SIRS](#)) and 30% declare their parents had severe fights (compared to 20% in [SIRS](#)). Finally, 8% declare they tried to commit suicide and 17% declare they ran away at least once, which is again much higher than [SIRS](#) people. These figures suggest young people attending Youth Job Centers tend to have particularly fragile life histories, which may negatively affect their health and their health decisions.

Deteriorated health

Young people in our sample tend to feel less healthy than same aged people from [SIRS](#) survey. Table 2 indicates that much more people in Youth Job Centers declare their state of health, whether general, physical or psychological, is bad²⁵, compared to [SIRS](#) young people. The difference is particularly high for psychological health, with 30% declaring they have bad psychological state of health in our sample, versus 14% in [SIRS](#). According to Beck scale, 15% of our sample has moderate to severe level of hopelessness (score higher than 8 over 20), 31% are classified as slightly hopeless (score below 4). These findings are in line with [CETAF](#) 2011 survey, and

²³Santé, Inégalités et Ruptures Sociales

²⁴Here we restricted [SIRS](#) sample to people of the same age as our population, that is to say people who had between 16 and 25 years old in 2010.

²⁵The initial questions have five different possible answers, from "Very good" to "Very bad", we dichotomized them into two categories, one from "Very bad" to "Average" and another one including "Good" and "Very good".

also with [Currie et al. \(2012\)](#) and [Labbe et al. \(2007\)](#) (mentioned section 2.1). Young people in our sample are also slightly more likely to consider that they get sick more easily than other people, and they tend to be much more anxious about their health, suggesting they feel more vulnerable, although they are not more likely to have experienced serious illness in the past, compared to [SIRS](#) young people. These health issues are likely to be prejudicial to their social and professional integration, just as integration difficulties are likely to exacerbate these health issues ([Cai and Kalb \(2006\)](#), [Currie and Madrian \(1999\)](#)).

Table 2: Pre-treatment socioeconomic and health characteristics

Variable	Our sample		SIRS	
	Mean	N	Mean	N
Socioeconomic characteristics :				
Diploma inferior to bac	46.6	1522	29.6	206
Has difficulties in French	33.0	1525	N/A	N/A
Has financial difficulties	30.1	1509	14.6	198
Has been placed to DDASS	8.0	1518	N/A	N/A
Family had severe fin. pbs	25.8	1522	14.5	173
Family had serious housing pbs	9.4	1525	10.4	173
Parents serious health pbs	33.2	1523	19.7	173
Parents had severe fights	30.2	1515	20.0	205
Has tried to commit suicide	8.2	1520	1.2	173
Ran away at least once	16.6	1525	5.3	206
Health characteristics :				
Bad general state of health	19.4	1526	10.1	208
Bad physical state of health	20.3	1523	14.4	208
Bad psychological state of health	30.1	1521	14.4	208
No hopelessness Beck	53.3	1150	N/A	N/A
Slight hopelessness Beck	31.5	1150	N/A	N/A
Moderate hopelessness Beck	11.9	1150	N/A	N/A
Severe hopelessness Beck	3.3	1150	N/A	N/A
Get sick more easily	20.7	1523	17.8	208
Has already been seriously ill	25.6	1520	27.5	207
Easily anxious when something wrong	56.5	1524	35.1	208

Note: Mean corresponds to proportion of people for each variable (all binary). N is the number of people who answered the question in the survey.

3.3.2 Data collected by physicians and social workers (subsample of treated people)

As mentioned in section 3.2, the physicians and social workers also collected data for each young people they met. Physicians collected data on their health status and practices, and based the recommendations they made to each young people on these two assessments. Social workers

collected data on their initial health insurance situation. These subsamples are selected since they are made of people who decided to meet the physician and/or the social worker, but the data have been collected by experts so we consider they are still of interest.

As mentioned above, there is evidence in the literature of non-use of public aids such as CMU or CMU-C that might explain why people are incompletely or even not covered. Among the subsample of young people who met the social worker, Table 3 shows that 5% have no health insurance at all and 13% have no complementary insurance. SIRS people are less numerous to have no insurance, but more numerous to have no complementary insurance. These figures suggest that their level of medical coverage is on average quite good, although there is still a small room for improvement. If we look at physicians data, Table 3 indicates that the physicians diagnosed a depression for 14% of the people they met, confirming that mental health is an issue in this population. They also find that 30% had a dental problem, 15% had their vaccine not up to date, and that visual acuity (with or without correction for those who do not have it) is on average very good. BMI measures suggest that weight issues are not specifically more severe in our population than in the general population: 2003 INSEE Health Survey²⁶ indicates that 4% of the population suffer from underweight compared to 7% in our sample, 28% from overweight compared to 20% in our sample and 10% from obesity compared to 13% in our sample. The assessment of risk behavior suggests young people attending Youth Job Centers do not have clearly riskier practices concerning tobacco and drugs compared to 2010 BSJ²⁷ people, which are representative of 15 to 30 year old French people. However 33% of the young people in our sample declared they never used condoms last year and cross tabulation of this variable with HIV screening reveals only 28% of people who never used condoms had HIV screening. Table 3 also reveals that 24% of young people had unprotected first intercourse²⁸. None of these questions or crossings of these questions are sufficient to determine with certainty whether sexual behavior is risky or not, so we asked the physicians to indicate whether they consider that the various answers provided by the young person and their discussion with her correspond to a risky sexual behavior or not, and they indicated that for 31% of them, the behavior was probably or certainly risky. Finally, Table 3 shows that there was a need for healthcare in most of the cases since 82% of the young people who met the physician have been directed to at least one practitioner or to a biological analysis. Consistent with health and risk behavior assessments, the most recurrent recommendations made by the physicians were to consult a dentist (39% of the young people who met the physician), a general practitioner (34%), a gynecologist (29%), to have HIV screening (29%), to consult a psychologist (22%), an ophthalmologist (16%), to have a check-up (13%) or a vaccination (9%). Other recommendations (radiology, dietician, dermatologist, psychiatrist or other specialists) concern less than 5% of the young people who met the physician, there are not presented here.

Table 3: Pre-treatment assessment of health insurance situation, health, risk behaviors and medical recommendations

Variable	Our sample		SIRS/INSEE/BSJ	
	Mean	N	Mean	N
Insurance situation :				
No health insurance	4.8	630	0.5	201
<i>Continued on next page...</i>				

²⁶Here we could not restrict the sample to 16 to 25 year old people.

²⁷Baromètre Santé Jeunes

²⁸These computations consider only sexually active people, which reduces the sample to 278 observations.

... table 3 continued

Variable	Mean	N	Mean	N
(CMU or SS) and no compl.	12.9	630	19.9	201
(CMU or SS) and CMUc	20.5	630	14.9	201
(CMU or SS) and private compl.	61.0	630	64.7	201
Health assessment :				
Depressed acc. to physician	14.3	335	N/A	N/A
Has a dental problem	30.0	303	N/A	N/A
Vaccines not up to date	15.1	325	N/A	N/A
Average visual acuity (over 10)	9.5	280	N/A	N/A
BMI < 18.5 (underweight)	6.8	325	4.3	40900
25 ≤ BMI < 30 (overweight)	19.7	325	28.0	40900
BMI > 30 (obesity)	12.6	325	10.0	40900
Risk behavior assessment :				
Smokes tobacco everyday	33.9	339	36.1	27653
Has already tried cannabis	44.4	340	44.4	27653
Had cannabis last year	25.0	340	19.0	27653
Had already tried cocaine	6.5	340	5.5	27653
No condom last year	32.6	276	N/A	N/A
HIV test last year	30.9	278	N/A	N/A
1st intercourse unprotected	23.7	278	N/A	N/A
Risky sex behavior acc. phy.	31.2	276	N/A	N/A
Recommendations :				
Directed to a practitioner	81.7	339	N/A	N/A
-Directed to dentist	38.9	339	N/A	N/A
-Directed to GP	33.9	339	N/A	N/A
-Directed to gynecologist	29.1	175	N/A	N/A
-Directed to HIV screening	28.6	339	N/A	N/A
-Directed to psychologist	21.5	339	N/A	N/A
-Directed to ophthalmologist	16.2	339	N/A	N/A
-Directed to a check-up	12.7	339	N/A	N/A
-Directed to vaccination	9.4	339	N/A	N/A

Note: Mean gives the mean of each variable. N is for our sample and SIRS the number of people who answered the question, and for [INSEE](#) and [BSJ](#) the number of people in the survey (resp. 40900 and 27653), as we do not have local response rates.

4 Theoretical framework

We develop in this section a very simple model of health decisions whose aim is twofold: clarifying the mechanisms through which the two information programs can change health decisions and

deriving testable predictions for the empirical model.

4.1 Notations

We denote individual i 's health status θ_i , it is unknown to the individual and assumed to be normally distributed: $\theta_i \hookrightarrow N(\theta_{0i}, \sigma_{0i}^2)$. Based on information I_{0i} on his/her health status, the individual has perceived health status $\theta_i|I_{0i} \hookrightarrow N(\theta_{0i} + b, \sigma_i^2)$, where b denotes a possible bias in the individual's perceptions. The individual will consider (s)he is sick if her/his perceived health status is below a reference health status θ_{ref_i} that depends on the health status of people in his/her socioeconomic environment²⁹.

When not sick, or when sick but cured, people have high utility level U_{hi} , whereas when they are sick and do not get cured, they have low utility level U_{li} . The monetary cost of the cure is denoted c_i .

4.2 Decision rule and programs effects

Individuals will invest in their health if the level of utility they reach with the investment is higher than the level of utility they reach without, that is to say, they invest if:

$$\begin{aligned} U_{hi} - c_i &> U_{hi}P(\theta_i > \theta_{ref_i}|I_i) + U_{li}P(\theta_i < \theta_{ref_i}|I_i) \\ \Leftrightarrow P(\theta_i < \theta_{ref_i}|I_i) &> \frac{c_i}{U_{hi} - U_{li}} \end{aligned}$$

For young people who did not meet the physician, $I_i = \{I_{0i}\}$, whereas for young people who received the medical information from the physician, $I_i = \{I_{0i}, I_{mi}\}$, where I_{mi} , the physician diagnosis, is assumed to be a noisy but unbiased measure of their health status ($I_{mi} = \theta_i + \epsilon_i$, where ϵ_i is independent of I_{0i}) and to be normally distributed: $I_{mi} \hookrightarrow N(\theta_{0i}, \sigma_{0i}^2 + \sigma_{mi}^2)$ ³⁰. The effect of the physician diagnosis goes through the change in health perceptions from $\theta_i|I_{0i}$ to $\theta_i|I_{0i}, I_{mi}$. Applying the Bayes rule, we get that:

$$\theta_i|I_{0i}, I_{mi} \hookrightarrow N(I_{mi}\frac{\sigma_i^2}{\sigma_i^2 + \sigma_{mi}^2} + (\theta_{0i} + b)\frac{\sigma_{mi}^2}{\sigma_i^2 + \sigma_{mi}^2}, \frac{\sigma_i^2\sigma_{mi}^2}{\sigma_i^2 + \sigma_{mi}^2})$$

We can easily show that the more precise the signal provided by the physician, the closer the revised expectation to the signal (in the extreme case where σ_{mi} tends to zero, the expectation of the revised perceptions will tend to the signal I_{mi} , while in the other extreme case where σ_{mi} tends to infinity, the expectation will tend to the prior expectation $\theta_{0i} + b$). The revised variance will always be smaller than the prior variance, but the more precise the signal compared to the prior perception, the higher the reduction. One implication is that we should expect higher impacts of the medical diagnosis for illnesses that are hard to self-diagnose than for illnesses that have easy to detect symptoms, and for which the diagnosis is not very informative (I_{mi}

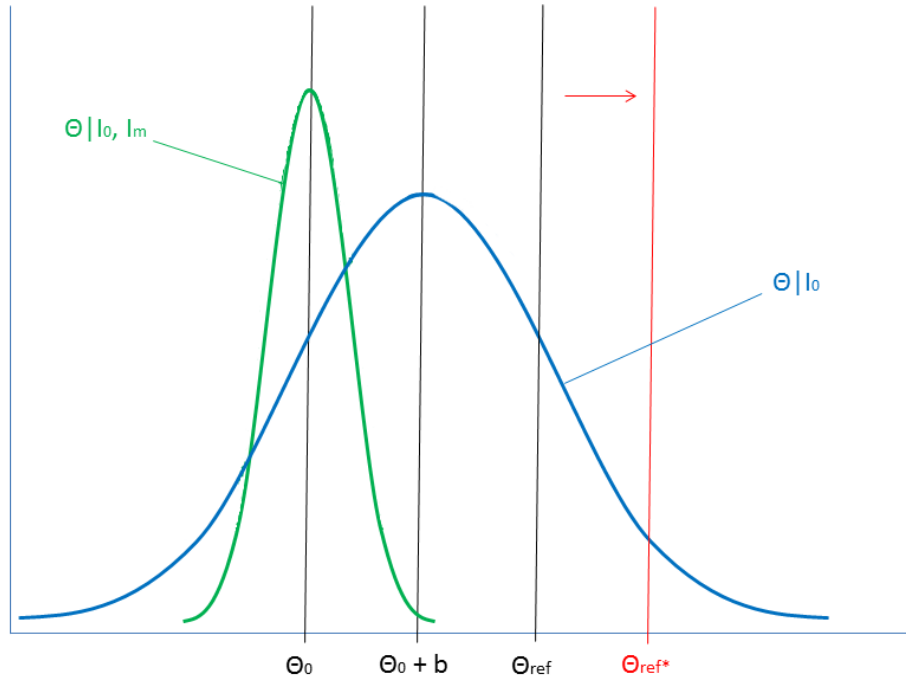
²⁹See for example [Sen \(2002\)](#) for a discussion of the idea that people tend to consider as "normal" symptoms that are very common in their community while people surrounded by healthier peers would consider the same symptoms as a sign of illness; Sen illustrates this point with the difference in reported morbidity between poor and rich states in India, reported morbidity being much higher in rich states. See also [Das et al. \(2012\)](#) for another illustration of this idea.

³⁰The two moments of the distribution are derived from the fact that $I_{mi} = \theta_i + \epsilon_i = \theta_{0i} + \xi_i + \epsilon_i$.

similar to I_{0i}).

While the limited program providing only health insurance is likely to reduce c_i , the combined program additionally providing health diagnosis is likely to also improve perceptions young people have on their health status, which corresponds to the shift from the blue to the green distribution in Figure 2. Another possible channel through which the physician intervention could play is θ_{ref_i} : telling young people whether their health status correspond a illness or not, which corresponds to the shift from θ_{ref} to θ_{ref}^* in Figure 2.

Figure 2: Change in perceptions and reference health status



5 Empirical framework

5.1 ITT Model

For all the outcomes presented in section 6, we estimate the following intent-to-treat model of being encouraged to meet the social worker or both the social worker and the physician:

$$Y_i = \alpha_1 Z_i^{SW} + \alpha_2 Z_i^{SW+P} + X_i \beta_1 + \sum_{j=1}^4 (\gamma_j M_{ij}) + \epsilon_i$$

where Z_i^{SW} is a dummy indicating whether individual i is assigned to social worker meeting rather than control group or alternative program, Z_i^{SW+P} is a dummy indicating whether individual i is assigned to social worker and physician meetings rather than control group or alternative program. X_i is a vector of pre-randomization covariates that are included to account for chance differences between treatment and control groups and improve power, they are the same for all regressions. X_i contains socio-demographic characteristics (sex, level of education, experience, financial resources, parents' occupation), self-rated health, health insurance situation and healthcare utilization. Results are robust to variations in X (Appendix F reproduces the regressions without covariate). M are Youth Job Center fixed effects accounting for possible site effects. Although most of our outcomes are binary or count variables, our favorite specification is the linear probability model, which relies on fewer statistical assumptions. Results are robust to non linear specifications³¹.

We are interested in parameters α_1 and α_2 that respectively give the effect of being assigned to the social worker program and being assigned to the combined social worker plus physician program rather than being assigned to the control group, but we are also interested in the difference between these two parameters, that allows to isolate the effect of improving health subjective perceptions. Interesting conclusions can be derived from the comparison of the two programs. If improved perceptions make the utility of health insurance more salient, then the combined program should lead to higher improvement in health insurance than the social worker program. If disadvantaged young people underestimate their health needs or the risks associated with their behavior, then the social worker program might be ineffective in changing health investment behaviors.

We present intent-to-treat estimates only and no IV estimates that would allow to recover the effect of participating (instead of being assigned) to the programs because we consider that the exclusion condition required to recover consistent IV estimates is not fully plausible in our case. This exclusion condition states that encouraging people to meet the physician or the social worker (assignment variable) does not affect the outcome other than through effectively meeting them (participation variable), which could be a strong assumption since only mentioning health concerns could directly affect people's perceptions and behaviors regarding health. Nonetheless, it should be reminded that since compliance rates are very high (see section 2.3), significant differences between the groups will be driven by a relatively large proportion of actually treated people.

Finally, we assume that the outcomes of an individual are not influenced by the treatment status of other individuals. There could be spillovers if people from the treatment groups share some information they got through the program with people from the control group. We cannot rule out the possibility of such spillovers since young people can interact when they come to the job

³¹Tables available on request.

center or outside of it if they know each other. Nonetheless, we believe interactions inside the job center are very limited since people do not come to the job center so often (in our sample, young people have for example 5.5 meetings on average with their counsellor per year) and the probability that young people know each other is quite low given that they come from various areas (except in the Youth Job Center of Toulouse, there is only one job center for the whole city). In case control people have been affected, our estimates would most likely underestimate the true impacts.

5.2 Validity of the experimental design

Causal inference rests on the assumption that assignment to one of the two programs or control group was random. Comparison of three groups on a large set of baseline observed characteristics suggests that randomization indeed provided similar groups, with less than 10% of the tests (5 over 75) showing a significant difference at the 10% level or less³² (see Appendix D). However, not all the people in the baseline sample answered the endline survey that we use to estimate impacts, so we need to check that attrition rates are comparable between the three groups and that the three groups remains comparable in the endline sample. Overall response rate to the final survey is 71.9%. In the combined social worker and physician group, response rate is 71.6%, in the social worker group it is 72.7% and in the control group it is 71.7%. Pair-wise Chow tests suggest these three rates are not statistically different. Nonetheless, it could be that although the rates are similar, respondents selected differently in the groups. To have an indication of this possible source of bias, we redo the balancing checks for baseline characteristics on the sample of respondents only (see Appendix D). It seems that the three groups are comparable (4 tests over 75 showing a significant difference at the 10% level or less), although smaller sample reduces our power to detect small differences. We conclude that attrition is likely to be ignorable.³³

6 Results

6.1 Health insurance

The first question we want to answer is whether the programs allow to remove financial barriers disadvantaged young people face in their use of healthcare services. We are interested to know also whether the program combining information on insurance with information on health needs and risks has a higher impact on the health insurance take-up compared to the program providing information on health insurance only. Table 4 below suggests that both programs led to an increase in the proportion of people benefiting from CMU-C, the free public complementary insurance for low-income people, that provides full medical coverage and cash advance exemption. The proportion is 5 percentage points higher with the combined program and 6 percentage points higher with the social worker only program (the difference is not statistically significant), which approximately correspond to a 25% increase of the proportion of recipients. These increases demonstrate that some people were eligible to

³²As mentioned above, the few differences are controlled for in the regressions.

³³With 1 100 final observations and imperfect compliance, we are able to detect a MDE of 0.237 standard deviation in the comparison between physician and social worker versus control group, 0.252 standard deviation in the comparison between social worker versus control group and 0.281 standard deviation in the comparison between physician and social worker group versus social worker group. These MDE are still quite small.

CMU-C but did not use it³⁴, which confirms Dufour-Kippelen et al. (2006) that studies non use of CMU-C as well. Providing them with information on eligibility rules and application procedures reduces non-use of this public health insurance, which is in line with Aizer (2007) findings that information and administrative costs are important barriers to enrollment to Medicaid. Similar results have been found recently on EITC benefits or financial aid programs for college enrollment (Bhargava and Manoli (2015), Bettinger et al. (2012)). Nonetheless, only the combined program allows to significantly decrease the proportion of people with no complementary insurance, from 17% in the control group to 11% with the combined program. Although the difference with social worker only program is not statistically significant, this difference could suggest that providing additional information on health needs and on risks makes the utility of having a complete coverage (basic coverage plus complementary coverage) more salient. It is indeed likely that young people, due to their age, are globally overoptimistic about their health and their risk of bad health outcomes and under-insure themselves³⁵. The proportion of people who do not know their medical coverage is unchanged with both programs, but the room for improvement was small since the control group mean is already very low.

To capture the perceptions young people have of the health system, we use three different measures: a quiz on the functioning of health insurance, a question on whether young people think it is difficult to know who to consult (that we interpret as search costs), and a question on whether they think you need money to get care. We find that understanding of health insurance and search costs are not affected by the combined program, although the social worker gave information on health insurance functioning and the physician gave information on the practitioners to consult. It suggests they were not the main determinants of health decisions. Perceived monetary costs decrease only with the combined program (73% of the treatment group considering that you need money to get healthcare versus 81% in the control group). People in the social worker program have improved health insurance as in the combined program, but this improvement does not go with higher health investments (section 6.2 shows healthcare utilization and health practices are unaffected). This could explain that their perceptions of monetary costs associated with healthcare did not change.

Table 4: Impact on Health insurance and perceived costs (ITT estimates on full sample)

Variable	Mean C	SW+P	p-values	SW	p-values	N
Insurance coverage :						
Incomplete coverage	0.173	-0.039 (0.027)	0.150	-0.011 (0.028)	0.687	1093
-No insurance	0.043	0.014 (0.017)	0.414 <i>0.866</i>	0.004 (0.016)	0.787 <i>0.955</i>	1093
-(CMU or SS) and no comp	0.131	-0.053** (0.023)	0.024 <i>0.155</i>	-0.016 (0.025)	0.530 <i>0.893</i>	1093
Complete coverage	0.727	0.050 (0.033)	0.122	0.014 (0.033)	0.680	1093

Continued on next page...

³⁴The data do not allow us to identify the whole population of eligible people in the sample.

³⁵The population of uninsured young adults is sometimes referred to as "young invincibles" in the United States (Levitt et al. (2013)).

... table 4 continued

Variable	Mean C	SW+P	p-values	SW	p-values	N
-(CMU or SS) and CMU-C	0.193	0.049* (0.027)	0.071 <i>0.325</i>	0.057** (0.028)	0.040 <i>0.220</i>	1093
-(CMU or SS) and private	0.534	0.002 (0.033)	0.955 <i>0.955</i>	-0.044 (0.034)	0.197 <i>0.622</i>	1093
Does not know coverage	0.099	-0.011 (0.022)	0.605	-0.003 (0.022)	0.911	1093
Perceptions of health system :						
Health insurance quiz (0 to 5)	3.784	0.041 (0.093)	0.658 <i>0.988</i>	-0.048 (0.093)	0.607 <i>0.988</i>	1091
Difficult know who to consult	0.691	-0.008 (0.035)	0.814 <i>0.988</i>	0.017 (0.035)	0.618 <i>0.988</i>	1086
You need money to get care	0.809	-0.082*** (0.032)	0.009 <i>0.051</i>	-0.003 (0.031)	0.932 <i>0.988</i>	1092

Note: Mean C gives variable mean in the control group. SW+P gives the impact of physician plus social worker intervention versus control group, robust standard errors are in parentheses below. p-values gives per comparison (p.c.) p-values and (where applicable) family-wise p-values in italics below corresponding to the left column effects. See the Appendix for a description of the families. SW gives the impact of social worker intervention versus control group. N gives the number of observations in the regression. * stands for p.c. p-value<0.1, ** for p.c. p-value<0.05 and *** for p.c. p-value<0.01.

We also asked young people who met the social worker to answer a short survey on their opinion about the social worker program. Although these statistics should be interpreted with caution because the face-to-face feature of the survey is likely to induce a desirability bias, we can still note that 78.8% of them declared the program was useful because they needed it and 54.5% declared they needed it but did not want to go through the procedures. Among this latter proportion of people, 64% declared the program convinced them to exercise their insurance rights. This latter statistic echoes the increase of the proportion of CMU-C recipients in both treatment groups.

6.2 Health investments

Second, we want to know whether these improvements in health insurance are associated with higher health investments, and again we want to compare the impacts of the combined program with the impacts of the social worker only program. To measure the use of health care services, we look at the consultations young people declared during the twelve months preceding the final interview. We ask them about various medical practitioners. To avoid the multiplication of statistical tests and associated increase of the risk of false positives, we construct a synthetic dummy variable indicating whether or not the young person met any specialist practitioner, this variable gathers twenty one different practitioners. Nonetheless, insofar as the main recommendations of the physicians concerned general practitioner (GP), dentist, psychologist, gynecologist and ophthalmologist³⁶ (see section 3.3.2), we look separately at these five practitioners. Table 5 shows the program combining information on insurance with

³⁶Unfortunately we do not have endline data on HIV screening.

information on health needs and risks has a small impact on GP consultation (83% versus 78% in the control group), which does not appear in the program providing only information on insurance³⁷. The strongest impact is the impact of the combined program on the probability to consult a psychologist, which is almost twice higher than in the control group³⁸. Given that the descriptive analysis (section 3.3) highlighted that deteriorated mental health was one of the main health issue faced by disadvantaged young people, this result is crucial. Again, this effect does not appear when young people are provided with information on insurance only, suggesting that low use of psychologist services are likely to come from wrong or fuzzy perceptions of health status. Nonetheless, the programs have no impact on the probability to consult other recommended practitioners. It might seem surprising that the probability to consult a dentist does not increase since the descriptive analysis suggests that 39% of the young people who met a physician in the experiment were diagnosed with a dental problem. If we make (descriptive) cross classifications, we see that among people who were diagnosed with a dental problem, were directed to a dentist by the physician and did not go³⁹, only 6.5% declare they renounced to dental care, suggesting the physician intervention did not allow to change perceptions of health needs in this case. This difference between psychologist consultation and dentist consultation echoes the difference in the prediction of the bayesian model between illnesses having easy to self-diagnose symptoms (which is likely to be the case for dental problems) and illnesses having hard to self-diagnose symptoms (which is likely to be the case for psychological problems). We may see an analogy with [Boozer and Philipson \(2000\)](#) and [Gong \(2015\)](#) who find in the case of HIV testing that only people who are surprised by the diagnostic change their behavior.

If we look at health practices, that we interpret as preventive investments, we see that although the programs have no impact on the probability to do something to maintain one's health (sport, diet), the combined program slightly increases the proportion of people who have a regular doctor, defined as a doctor young people can easily consult if needed⁴⁰ and increases the proportion of people who use contraception⁴¹. The latter result is interesting since the descriptive analysis showed that 31% of the people who met a physician in the experiment have been considered as having risky sexual behavior.

Supporting our interpretation that the information provided by the physician made health perceptions less fuzzy in the case of psychological health and sexual risk behavior, we find that young people in the combined program were much less likely to seek information on depression and sexuality while young people in the limited program were much more likely to seek information on these issues (the difference is significant at the 1% level for depression and at the 10% level for sexuality)⁴², that are two of the three main health issues faced by this population according to the physicians' diagnoses. These very different searching behavior suggest that while the limited intervention seems to raise questions, the combined program

³⁷It was made clear in the questionnaire that the consultation(s) with the physician in the job center as part of the experiment could not be considered as GP consultation(s).

³⁸Psychologists consultations can be reimbursed by certain insurances if they are provided in hospitals, or can even be free in public health centers for low-income people. Unfortunately we only know whether they consulted a psychologist or not, we do not know where they consulted.

³⁹This subsample is made of 31 young people.

⁴⁰It was made clear in the questionnaire that the physician present in the job center as part of the experiment could not be considered as a regular doctor.

⁴¹Contraception can be reimbursed by certain insurances, but again we do not know whether it was or not in the data.

⁴²Table available on request.

including the physician diagnosis seems to reduce uncertainties on health issues.

The absence of impact on both curative and preventive investments with the social program only contrasts with [Finkelstein et al. \(2012\)](#) who find that Medicaid expansion is enough to induce higher use of healthcare services and preventive care (at a one year horizon as well). However, their study concerns low-income adults who goes from no insurance to Medicaid coverage, while we focus on low-income young people who goes from suboptimal insurance to better insurance, and who may be more likely to underestimate their health needs due to their younger age.

Table 5: Impact on Health investments (ITT estimates on full sample)

Variable	Mean C	SW+P	p-values	SW	p-values	N
Healthcare utilization :						
Consulted GP	0.783	0.051*	0.075 (0.029) <i>0.533</i>	-0.014 (0.030) <i>0.999</i>	0.647 (0.030) <i>0.999</i>	1091
Consulted dentist	0.454	-0.041 (0.037)	0.269 <i>0.921</i>	0.008 (0.038) <i>0.999</i>	0.829 (0.038) <i>0.999</i>	1099
Consulted psychologist	0.087	0.073*** (0.023)	0.002 <i>0.019</i>	-0.001 (0.022) <i>0.999</i>	0.965 (0.022) <i>0.999</i>	1100
Consulted gynecologist	0.475	-0.034 (0.052)	0.518 <i>0.996</i>	-0.071 (0.051) <i>0.786</i>	0.160 (0.051) <i>0.786</i>	589
Consulted ophthalmologist	0.176	0.007 (0.029)	0.808 <i>0.999</i>	0.009 (0.029) <i>0.999</i>	0.745 (0.029) <i>0.999</i>	1073
Consulted specialist(s)	0.837	0.007 (0.027)	0.798 <i>0.999</i>	0.012 (0.027) <i>0.999</i>	0.658 (0.027) <i>0.999</i>	1058
Health practices :						
Has regular doctor	0.810	0.062** (0.026)	0.019 <i>0.103</i>	0.037 (0.028) <i>0.530</i>	0.180 (0.028) <i>0.530</i>	1091
Contracep. used last intercourse	0.753	0.067** (0.031)	0.031 <i>0.139</i>	0.026 (0.032) <i>0.621</i>	0.424 (0.032) <i>0.621</i>	1068
Maintains his health	0.480	0.034 (0.036)	0.350 <i>0.621</i>	0.039 (0.037) <i>0.621</i>	0.293 (0.037) <i>0.621</i>	1097

Note: Mean C gives variable mean in the control group. SW+P gives the impact of physician plus social worker intervention versus control group, robust standard errors are in parentheses below. p-values gives per comparison (p.c.) p-values and (where applicable) family-wise p-values in italics below corresponding to the left column effects. See the Appendix for a description of the families. SW gives the impact of social worker intervention versus control group. N gives the number of observations in the regression. * stands for p.c. p-value<0.1, ** for p.c. p-value<0.05 and *** for p.c. p-value<0.01.

Just as with the social worker intervention, we asked young people who met the physician to answer a short survey on their opinion about the physician's intervention. Although these statistics should be interpreted with caution as well, it reveals that 76.8% of them declared that the program was useful because they needed it and 39.1% declared they needed it but did not suspect it before the consultation(s). Among those who declared the program was useful

because they needed it, 63.4% declared they would not have consulted a physician if they had not been encouraged to. These statistics tend to confirm that the program raised awareness about health needs for a large proportion of young people.

6.3 Health and well-being

As for all the outcomes presented, health status is assessed using the declaration data collected one year after the beginning of the experiment. We first use three questions on self-assessed general, physical and psychological health. Table 6 suggests the programs did not lead to improved self-assessed health. We even see a little deterioration of psychological health with the social worker program (significant at 10%), which could be imputed to worries raised by this intervention that mentions health without providing information on it, contrary to the combined program. A parallel result (not presented here) that could support this interpretation is that people in the social worker program declare they searched more information about health (and in particular about depression) than the control group while people in the combined program searched less (the difference between the two treatment groups is significant at less than 5%). This search behavior could reflect worries raised by the partial intervention. We also use as a measure of psychological health the Beck Hopelessness scale (Beck et al. (1974)), which is usually taken as an indicator of the level of risk of committing suicide. This questionnaire is made of 20 questions, allowing to create a score that can be divided in four blocks. Scores between 0 and 4 suggest no hopelessness, scores between 5 and 8 suggest slight hopelessness, scores between 9 and 13 suggest moderate hopelessness and scores higher than 14 suggest severe hopelessness. Although we could have expected an improvement of this score following the increase in the probability to consult a psychologist, we do not find any impact of the combined program on Beck scores. We also built an index of well-being based on the level of satisfaction people declared along three dimensions: health, self-confidence and life in general. There is no impact of the program on this index. One possible explanation could be that these effects take time and one year might not be sufficient to detect any improvement. Another possibility raised in Finkelstein et al. (2012) is that two contradictory effects might be at stake and compensate each other: improved health investments could be associated with health improvement but in parallel learning about one's health problems could lead to higher sensitivity to health problems (especially if young people initially tended to underestimate these problems (Sen (2002), Das et al. (2012))) and induce people to report worse health. These results nonetheless contrast again with Finkelstein et al. (2012) who find improvements in self-reported health and well-being associated with better insurance and higher health investments.

Table 6: Impact on Health and well-being (ITT estimates on full sample)

Variable	Mean C	SW+P	p-values	SW	p-values	N
Good general health	0.839	-0.010 (0.026)	0.702 <i>0.971</i>	-0.016 (0.026)	0.535 <i>0.963</i>	1097
Good physical health	0.833	-0.034 (0.027)	0.207 <i>0.697</i>	0.005 (0.026)	0.858 <i>0.979</i>	1098
Good psychological health	0.807	0.005 (0.028)	0.864 <i>0.979</i>	-0.053* (0.029)	0.068 <i>0.380</i>	1096

Continued on next page...

... table 6 continued

Variable	Mean C	SW+P	p-values	SW	p-values	N
Hopeless Beck (>8)	0.127	-0.017 (0.026)	0.514 <i>0.963</i>	-0.037 (0.025)	0.139 <i>0.591</i>	877

Note: Mean C gives variable mean in the control group. SW+P gives the impact of physician plus social worker intervention versus control group, robust standard errors are in parentheses below. p-values gives per comparison (p.c.) p-values and (where applicable) family-wise p-values in italics below corresponding to the left column effects. See the Appendix for a description of the families. SW gives the impact of social worker intervention versus control group. N gives the number of observations in the regression. * stands for p.c. p-value<0.1, ** for p.c. p-value<0.05 and *** for p.c. p-value<0.01.

6.4 Labor market outcomes

Labor market outcomes are the ultimate outcomes we would like to affect. To measure them, we look at the number of training courses, workshops⁴³ and weeks worked during the year before the final survey, as well as their dichotomisation. Table 7 shows that the combined program significantly increases the probability to get training (from 42% in the control group to 50%) and the number of training courses (from 52 in the control group to 72). The probability to participate to a workshop is also slightly increased. These results might seem surprising given that we find no health improvement, but investing in one's health is likely to be driven by the same move as investing in one's skills. Nonetheless, when we look at employment, we see no impact of the programs, neither on the probability to work nor on the number of weeks worked. These outcomes might be more likely to be affected on the longer run. The latter result is in line with Kaestner et al. (2015) and Baicker et al. (2014) who find no employment improvement with Medicaid expansion in spite of insurance coverage improvements. Finally, we looked at whether young people had more meetings with their counsellor⁴⁴, were more likely to have a job project or more optimistic about their chance to get a job, these measures being likely to reflect higher motivation, but we see no improvement of these outcomes.

Table 7: Impact on Labor market outcomes (ITT estimates on full sample)

Variable	Mean C	SW+P	p-values	SW	p-values	N
Did training course(s)	0.420	0.080** (0.037)	0.033 <i>0.169</i>	0.048 (0.038)	0.207 <i>0.474</i>	1092
Participated workshop(s)	0.220	0.059* (0.032)	0.065 <i>0.267</i>	0.048 (0.032)	0.135 <i>0.422</i>	1082
Worked	0.751	0.029 (0.030)	0.339 <i>0.527</i>	0.013 (0.031)	0.680 <i>0.682</i>	1091
Number of training courses	0.520	0.200** (0.086)	0.021 <i>0.093</i>	0.093 (0.061)	0.123 <i>0.423</i>	1092

Continued on next page...

⁴³Youth Job Centers regularly organize workshops in the job center on specific topics such as writing a motivation letter, a CV, they may also consist in mock job interviews for example.

⁴⁴This information has been collected by the research assistants.

... table 7 continued

Variable	Mean C	SW+P	p-values	SW	p-values	N
Number of workshops	0.597	0.163 (0.161)	0.314 <i>0.666</i>	0.114 (0.168)	0.498 <i>0.733</i>	1082
Nb weeks worked	20.641	0.903 (1.268)	0.477 <i>0.733</i>	2.060 (1.298)	0.113 <i>0.423</i>	1073
Number of meetings counsellor	5.744	0.213 (0.395)	0.589 <i>0.809</i>	0.104 (0.388)	0.788 <i>0.809</i>	1092
Have a job project	0.287	-0.037 (0.033)	0.264 <i>0.686</i>	-0.029 (0.033)	0.375 <i>0.735</i>	1080
Thinks higher chances to get job	0.297	0.044 (0.036)	0.223 <i>0.686</i>	0.048 (0.036)	0.178 <i>0.656</i>	1084

Note: Mean C gives variable mean in the control group. SW+P gives the impact of physician plus social worker intervention versus control group, robust standard errors are in parentheses below. p-values gives per comparison (p.c.) p-values and (where applicable) family-wise p-values in italics below corresponding to the left column effects. See the Appendix for a description of the families. SW gives the impact of social worker intervention versus control group. N gives the number of observations in the regression. * stands for p.c. p-value<0.1, ** for p.c. p-value<0.05 and *** for p.c. p-value<0.01.

7 Heterogeneity

The evidence presented in the previous section reveals the programs, especially the combined one, had significant impacts on a wide range of outcomes. This section investigates whether these impacts are driven by specific subpopulations⁴⁵. We first looked at heterogeneity between men and women. Gender may be a factor of social inequalities and as such, it is likely to be correlated with health inequalities (Ross and Bird (1994), Bird and Fremont (1991)). Various studies find that men and women tend to have different health behaviors (Waldron (1998), Verbrugge (1985)) and tend to self-rate their health differently (Prus (2011), Bambra et al. (2009)). Nonetheless we see no clear differences between men and women in the impact of the programs for the different outcomes we test.

We then looked at whether those who were supposed to be the most concerned by the issues covered by the interventions (the most economically disadvantaged and the least healthy) have higher impacts or not. We focused on the subgroup of people who have the most precarious economic situation (based on an index combining housing conditions and financial difficulties), but they do not have higher impacts than non precarious people, for none of the programs. We also focused on the subgroup of people who were initially diagnosed as moderately to severely hopeless according to Beck scale (score higher than 8 over 20). The combined program has barely no impacts on this subgroup, while it leads to improved health practices (higher probability to use contraception and to have a regular doctor) and better labor market outcomes (higher probability to get training courses, higher number of training courses and higher probability to participate to workshops) in the alternative subgroup. This suggests that the intervention is not adequate for people with the most important mental health issues.

⁴⁵ All the heterogeneity analyses have been done both with the same control variables as the full sample impact analysis and without any control variable, the conclusions are the same in both cases (tables available on request).

Finally, in line with the bayesian model, we investigated whether the programs had specific impacts on the people who were initially likely to be the least familiar with insurance and medical institutions, for whom the treatments should be the most informative. We considered the lowest educated people (who stopped school before grade 11⁴⁶) and people who are not French. Differences between the subgroups are not significant.

8 Conclusion

Through the collection of unique medical data, we find evidence of unmet medical needs among disadvantaged young people. Although these health issues are likely to lead to low employment outcomes, labor market policies usually do not take health issues into account. Relying on a randomized control trial that creates exogenous variations in the level of information on health insurance and health needs, we find that informing unemployed young people about both insurance schemes and their health leads to higher take-up of free public health insurance, higher probability to consult a psychologist, safer health behaviors and higher investments in training courses. On the other hand, providing information on health insurance alone increases the take-up of free public health insurance, advocating for simplification and enhancement of the visibility of such programs, but it is not sufficient to increase health investments. This suggests that financial constraint is not the only barrier to health investments among this population. Fuzzy perceptions of health needs and risks incurred seems to be a key determinant of under-investment. Policies tackling jointly the financial constraints to health investments and the low access to detection of health problems and prevention could help to increase health investments among disadvantaged youth, and they seem to have a potential for inducing labor market skills formation.

⁴⁶In France, grade 11 corresponds to Certificat d’Aptitude Professionnelle (CAP) or Brevet d’Etudes Professionnelles (BEP).

Appendix

A Determinants of the participation to the programs

Table 8: Determinants of the program take-up for each program

Variable	Diff. SW+P	N	Diff. SW	N
Socioeconomic characteristics :				
Stopped school before 16	-0.051**	528	0.008	497
Diploma inferior to bac	-0.061	529	-0.059	501
Has difficulties in French	0.042	530	0.016	501
Has been placed to DDASS	-0.043*	530	-0.033	496
Family had serious housing pbs	0.023	530	-0.011	500
Family had severe fin. pbs	-0.015	528	-0.056	500
Has financial difficulties	-0.003	526	-0.126**	496
Health :				
Bad general state of health	0.034	530	-0.058	501
Bad physical state of health	0.042	529	-0.081	501
Bad psychological state of health	0.087**	528	-0.142**	499
Hopeless Beck (>8)	0.051	389	-0.018	396
Perceived vulnerabilities :				
Get sick more easily	0.062*	530	-0.011	499
Body withstands illness very well	-0.126***	525	0.115**	497
When virus, usually catch it	0.069	529	0.048	501
Very healthy lifestyle	0.002	527	0.035	501
Expect better health	0.061	516	0.183***	490
Has already been seriously ill	0.080**	528	0.051	499
Has been so ill thought die	0.053	530	0.018	501
Insurance :				
No insurance	0.033	526	-0.037	500
(CMU or SS) and no comp	0.018	526	0.007	500
(CMU or SS) and CMU-C	-0.049	526	-0.045	500
(CMU or SS) and private	0.045	526	0.043	500

Note: Diff. SW+P gives the difference between people who met the physician and social worker and people who did not among people assigned to physician and social worker intervention. Diff. SW gives the difference between people who met the social worker and people who did not among people assigned to social worker intervention only. * stands for p-value<0.1, ** for p-value<0.05 and *** for p-value<0.01. N gives the number of observations in the regression.

B Presentation of the experiment

Your job center participates to a study on young people health. Health is important, but we know that a lot of young people have difficulties to get healthcare. Yet to find a training or a job, you need to feel good. This study is important because it will allow to better understand what young people needs are, but it is also important because it could help to reduce difficulties young people face in France in their access to healthcare services.

Would you accept to give us some time to answer a questionnaire? It would be very valuable for us. Of course your participation to this study is not compulsory, but the more young people will participate, the more reliable the study will be.

In this study, a randomly determined share of the participants will be invited to meet healthcare professionals working in the job center, and will possibly have a medical follow-up. Whatever the result of the lottery, you will have the same follow-up with your counsellor in the job center.

This study is fully anonymous: names will be erased of the information that will be transmitted to the researchers in charge of the study.

C List of questions of the endline survey

This table presents the list of questions asked in the endline survey, and indicates the ones we use for the impact analysis.

Table 9: List of endline survey variables

Variable	Used
Socioeconomic situation :	
Persons you currently live with?	
Their employment status?	
Your current financial resources?	
Any work plan? What plan?	x
Perceived chances to get a job?	x
Worked past year? When? Full or part time? Number of hours worked?	x
Training courses? How many? How many days?	x
Workshops? How many? How many days?	x
Social integration :	
Involved in associations? How many?	
Provide daily help to someone in need for nothing? Time it takes?	
Number of friends? How often do you have contacts with them?	
Have someone you can count on if you need it?	
Feel alone?	
Are there sick or disabled persons in your household?	
Do you trust school? Police? Health system? Media? Justice? Government?	
Political parties?	

Continued on next page...

... table 9 continued

Variable	Used
Health :	
General state of health?	x
Physical state of health?	x
Psychological state of health?	x
Any chronic health problem?	
Concerned with a close relative's health?	
Beck Hopelessness Questionnaire	x
Think physicians know better what is good for a patient?	
Think you need money to have good health?	
Think you need money to get healthcare?	x
Think illness and recovery depends on God or Fate?	
Think medicine has efficient solutions for any health problem?	
Think information provided by physicians is hard to understand?	
Think recommendations made by physicians are hard to apply?	
Think you can be seriously sick without noticing it?	
Think it is hard to find good physicians?	
Think it is hard to find a physician who have available slots?	
Think it is hard to know who to consult?	x
Think it is hard to confide in a physician?	
Think you get sick more easily than other people?	
Think your body withstands illness very well?	
Think when there is a virus you catch it?	
Think you worry easily when something is wrong?	
Think you have a very health life ?	
Think in the future you will have better health than people you know?	
Think you have already been seriously sick?	
Think you have already been so sick that you thought you would die?	
Think you care more about your health than most of the people?	
According to the physician you met in the experiment, your health is excellent ?	
Do something regularly to have better health? What?	
Have a regular doctor to consult in priority if health problem? If not, why?	x
Do you trust him?	
Consulted a physician in a hospital apart from emergency past year? Why?	
Have been to emergency past year? How many times? Why?	
Consulted a GP past year? How many times?	x
Consulted a company doctor past year? How many times?	x
Consulted a dentist past year? How many times?	x
Consulted a psychologist past year? How many times?	x
Consulted a pharmacist past year? How many times?	x
Consulted an alternative medicine doctor past year? How many times?	x
Consulted a radiologist past year? How many times?	x
Consulted a gynecologist past year? How many times?	x
Consulted an ophthalmologist past year? How many times?	x
Consulted a paediatrician past year? How many times?	x
Consulted a dermatologist past year? How many times?	x

Continued on next page...

... table 9 continued

Variable	Used
Consulted a cardiologist past year? How many times?	x
Consulted a rheumatologist past year? How many times?	x
Consulted a psychiatrist past year? How many times?	x
Consulted an ENT specialist past year? How many times?	x
Consulted a surgeon past year? How many times?	x
Consulted an anaesthetist past year? How many times?	x
Consulted a vein specialist past year? How many times?	x
Consulted a pulmonologist past year? How many times?	x
Consulted a diabetologist past year? How many times?	x
Consulted another specialist past year? How many times?	x
Have a close relative working in health sector?	
Women only: Followed for gynecological health? If not, why?	
Forgone healthcare past year? Why? Which type of care? Were they important?	
Would like to have a doctor close to your home?	
Would like to have emergency service close to your home?	
Would like to have access to free health care?	
Would like to know a pharmacist close to your home?	
Would like to know a pharmacist who gives you medicines without prescription?	
Would like to be in touch with a health worker you fully trust?	
Anything detrimental to your health in your current life?	
Have a basic health coverage? Standard or CMU?	x
Have a complementary health coverage? Private or CMU-C?	x
CMU-C only: CMU-C helped getting better healthcare?	
Followed for long-term health problem? Since when?	
Followed for disability? Receive disability benefit?	
Contraception used for the last intercourse? How did you get it?	x
Satisfied with your diet? Health? Love life? Family relationships?	x
Neighborhood? Level of self-confidence? Life in general?	
Information and knowledge :	
Interested by information on health and medicine?	
Feel informed on alcohol? Tobacco? Cannabis? Contraception? STIs? HIV?	
Air pollution? Water pollution? Diet? Vaccines? Cancer? Depression?	
Where do you look for health information?	
Past year, have you looked for information on pregnancy? Contraception?	
Health centers, hospitals or physicians? Travellers health? Children health?	
Sexuality? Depression? Tobacco, drug or alcohol? Diet? A specific illness?	
A specific medicine? Insurance system procedures? Blood or organ donation?	
Health associations?	x
Think French health system works well?	
Think French health system allows to treat everybody?	
Think French health system is badly managed?	
Think French health system allows to choose one's physician?	
Think French health system has good physicians?	
Think French health system cost too much?	
Insurance system quiz?	x

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... table 9 continued

Variable	Used
Morning after pill quiz?	
Have your insurance card on you?	
Know insurance center address?	
Have been there past year?	
Satisfaction about the programs (only for treated people) :	
Met the physician from the experiment past year? How many times? If not, why?	x
Think it was nice because you never meet physicians?	
Think it was useless because you did not need it?	x
Think you needed it but you ignored it?	x
Think you would have consulted a physician anyway?	x
Think you did not understand why the physicians asked certain questions?	
Think you learned health related things?	
Think confiding to a physician was good?	
Think it improved your health?	
Think consultation was too long?	
Think you would have liked to consult the physician more times?	
Think it convinced you to see doctors more regularly?	
Think you were anxious before the consultation?	
Think you were anxious after the consultation?	
Met the social worker from the experiment past year? How many times? If not, why?	x
Think it was nice because you never meet social workers?	
Think it was useless because you did not need it?	x
Think you needed it but did not do the procedures?	x
Think you would have seen a social worker anyway?	
Think you did not understand why the social worker asked certain questions?	
Think you learned things?	
Think it improved your situation?	
Think meeting was too long?	
Think it discouraged you because procedures look too complex?	
Think you did not dare to ask the social worker certain questions?	
Think it convinced you to exercise your insurance rights?	x
Think you were anxious after the meeting?	

D Balancing checks

Table 10: Balancing checks for the baseline sample

Variable	SW+P-C	SW-C	SW+P-SW	N
<i>Continued on next page...</i>				

... table 10 continued

Variable	SW+P-C	SW-C	SW+P-SW	N
Socioeconomic characteristics :				
Stopped school before 16	0.000	-0.005	0.006	1514
Diploma inferior to bac	-0.054*	-0.034	-0.020	1522
Has difficulties in French	-0.037	-0.041	0.003	1525
Has been placed to DDASS	-0.013	-0.013	-0.000	1518
Family had serious housing pbs	-0.016	-0.011	-0.005	1525
Family had severe fin. pbs	0.003	0.036	-0.033	1522
Has financial difficulties	0.020	0.003	0.016	1509
Health :				
Bad general state of health	0.004	0.025	-0.021	1526
Bad physical state of health	0.035	0.066***	-0.031	1523
Bad psychological state of health	0.036	0.040	-0.004	1521
Hopeless Beck (>8)	-0.012	0.016	-0.028	1150
Perceived vulnerabilities :				
Get sick more easily	-0.022	-0.018	-0.003	1523
Body withstands illness very well	-0.010	-0.037	0.028	1513
When virus, usually catch it	-0.035	-0.043	0.008	1521
Very healthy lifestyle	-0.004	-0.020	0.017	1520
Expect better health	0.010	0.055*	-0.045	1485
Has already been seriously ill	0.002	0.017	-0.015	1520
Has been so ill thought die	0.028	0.026	0.002	1525
Insurance :				
No insurance	0.021	0.043**	-0.021	1518
(CMU or SS) and no comp	-0.039	-0.060**	0.021	1518
(CMU or SS) and CMU-C	-0.005	0.010	-0.016	1518
(CMU or SS) and private	0.016	0.018	-0.002	1518

Note: SW+P-C gives the difference between the combined social worker and physician group and the control group, SW-C gives the difference between the social worker program and the control group, SW+P-SW gives the difference between the two treatment groups. * stands for p-value<0.1, ** for p-value<0.05 and *** for p-value<0.01. N gives the number of observations in the regression.

Table 11: Balancing checks for the endline sample

Variable	SW+P-C	SW-C	SW+P-SW	N
Socioeconomic characteristics :				
Stopped school before 16	-0.013	-0.016	0.003	1088
Diploma inferior to bac	-0.040	-0.019	-0.021	1094
Has difficulties in French	-0.019	-0.006	-0.013	1097

Continued on next page...

... table 11 continued

Variable	SW+P-C	SW-C	SW+P-SW	N
Has been placed to DDASS	-0.012	0.001	-0.013	1092
Family had serious housing pbs	0.001	-0.013	0.013	1099
Family had severe fin. pbs	-0.006	0.028	-0.034	1099
Has financial difficulties	-0.003	-0.033	0.031	1086
Health :				
Bad general state of health	-0.005	0.012	-0.017	1099
Bad physical state of health	0.044	0.061**	-0.016	1098
Bad psychological state of health	0.044	0.049	-0.005	1097
Hopeless Beck (>8)	-0.031	0.017	-0.048	831
Perceived vulnerabilities :				
Get sick more easily	-0.017	-0.033	0.016	1096
Body withstands illness very well	0.017	-0.015	0.032	1089
When virus, usually catch it	-0.030	-0.050	0.020	1095
Very healthy lifestyle	0.026	0.004	0.021	1094
Expect better health	0.003	0.076**	-0.073**	1068
Has already been seriously ill	0.014	0.015	-0.000	1097
Has been so ill thought die	0.036	0.025	0.011	1098
Insurance :				
No insurance	0.021	0.046**	-0.025	1094
(CMU or SS) and no comp	-0.021	-0.024	0.004	1094
(CMU or SS) and CMU-C	0.001	0.009	-0.008	1094
(CMU or SS) and private	0.031	-0.006	0.037	1094

Note: SW+P-C gives the difference between the combined social worker and physician group and the control group, SW-C gives the difference between the social worker program and the control group, SW+P-SW gives the difference between the two treatment groups. * stands for p-value<0.1, ** for p-value<0.05 and *** for p-value<0.01. N gives the number of observations in the regression.

E Families for p-values adjustment

Impact analysis provides family-wise adjustment of the p-values, using the algorithm described in [Kling et al. \(2007\)](#), which is based on the free step-down resampling method of [Westfall and Young \(1993\)](#). See [Liebman et al. \(2015\)](#), [Avvisati et al. \(2013\)](#), or [Finkelstein et al. \(2012\)](#) for applications.

The families we considered are the following:

- Family 1: Insurance coverage⁴⁷:
 - No insurance
 - (CMU or SS) and no comp
 - (CMU or SS) and CMU-C
 - (CMU or SS) and private
- Family 2: Perceptions of health system
 - Health insurance quiz
 - Difficult know who to consult
 - You need money to get care
- Family 3: Healthcare utilization – probabilities
 - Consulted GP
 - Consulted dentist
 - Consulted psychologist
 - Consulted gynecologist
 - Consulted ophthalmologist
 - Consulted specialist(s)
- Family 4: Health practices
 - Has regular doctor
 - Contracep. used last intercourse
 - Maintains his health
- Family 5: Health and well-being
 - Good general health
 - Good physical health
 - Good psychological health
 - Hopeless Beck (>8)
- Family 6: Labor market outcomes – probabilities
 - Did training course(s)
 - Participated workshop(s)
 - Worked
- Family 7: Labor market outcomes – numbers
 - Number of training courses
 - Number of workshops

⁴⁷We removed from this family variable "Does not know coverage" which is collinear with the four other variables (proportions sum to one) and variables "Incomplete coverage" and "Complete coverage" that are aggregates of the four other variables.

- Nb weeks worked
- Family 8: Motivation
 - Number of meetings counsellor
 - Have a job project
 - Thinks higher chances to get job
- Family 9: Information search behavior
 - Sough information on sexuality
 - Sough information on pregnancy
 - Sough information on contraception
 - Sough information on depression
 - Sough information on tobacco/drug/alcohol
 - Sough information on nutrition
 - Sough information on medicines
 - Sough information on health centers
 - Sough information on health insurance
 - Sough any information

We applied the adjustment to regressions based on the whole sample with control variables, to regressions based on the whole sample without control variables, and to regressions based on subgroups (heterogeneity analysis).

F Robustness analysis

Table 12: Impact on all the outcomes, no covariate (ITT estimates on full sample)

Variable	Mean C	SW+P	p-values	SW	p-values	N
Incomplete coverage	0.173	-0.039 (0.027)	0.146	-0.011 (0.027)	0.694	1093
-No insurance	0.043	0.015 (0.016)	0.347	0.004 (0.015)	0.773	1093
-(CMU or SS) and no comp	0.131	-0.054** (0.023)	0.019	-0.015 (0.024)	0.532	1093
Complete coverage	0.727	0.030 (0.032)	0.352	0.006 (0.033)	0.858	1093
-(CMU or SS) and CMU-C	0.193	0.052* (0.030)	0.086	0.066** (0.031)	0.031	1093
-(CMU or SS) and private	0.534	-0.021 (0.036)	0.555	-0.060* (0.037)	0.100	1093
Does not know coverage	0.099	0.008	0.704	0.005	0.828	1093

Continued on next page...

... table 12 continued

Variable	Mean C	SW+P	p-values	SW	p-values	N
		(0.022)		(0.022)		
Health insurance quiz (0 to 5)	3.784	0.033	0.715	-0.050	0.588	1091
		(0.091)		(0.092)		
Difficult know who to consult	0.691	-0.009	0.794	0.019	0.585	1086
		(0.035)		(0.034)		
You need money to get care	0.809	-0.082***	0.008	-0.006	0.841	1092
		(0.031)		(0.030)		
Consulted GP	0.783	0.036	0.220	-0.023	0.471	1091
		(0.029)		(0.031)		
Consulted dentist	0.454	-0.045	0.222	0.015	0.678	1099
		(0.037)		(0.037)		
Consulted psychologist	0.087	0.080***	0.001	0.017	0.449	1100
		(0.024)		(0.022)		
Consulted gynecologist	0.475	-0.050	0.317	-0.061	0.216	589
		(0.050)		(0.049)		
Consulted ophthalmologist	0.176	0.007	0.814	0.013	0.655	1073
		(0.029)		(0.029)		
Consulted specialist(s)	0.837	0.004	0.885	0.020	0.460	1058
		(0.027)		(0.027)		
Nb cons. GP	3.359	0.075	0.847	-0.068	0.854	1091
		(0.390)		(0.369)		
Nb cons. dentist	1.177	-0.184	0.259	0.230	0.314	1099
		(0.163)		(0.228)		
Nb cons. psychologist	0.721	0.131	0.637	-0.183	0.470	1100
		(0.277)		(0.253)		
Nb cons. gynecologist	1.788	-0.785***	0.002	-0.636**	0.023	589
		(0.253)		(0.280)		
Nb cons. ophthalmologist	0.213	-0.013	0.717	0.037	0.486	1073
		(0.037)		(0.053)		
Nb cons. specialist(s)	2.195	-0.054	0.682	0.053	0.700	1058
		(0.133)		(0.137)		
Has regular doctor	0.810	0.048*	0.079	0.022	0.437	1091
		(0.027)		(0.029)		
Contracep. used last intercourse	0.753	0.056*	0.071	0.016	0.629	1068
		(0.031)		(0.032)		
Maintains his health	0.480	0.025	0.498	0.017	0.645	1097
		(0.037)		(0.037)		
Sought info sexuality	0.288	-0.055*	0.087	0.011	0.745	1097
		(0.032)		(0.034)		
Sought info pregnancy	0.353	-0.050	0.154	0.013	0.707	1097
		(0.035)		(0.036)		
Sought info contraception	0.291	-0.019	0.559	0.018	0.600	1095
		(0.033)		(0.034)		
Sought info depression	0.291	-0.051	0.118	0.062*	0.074	1096
		(0.033)		(0.035)		
Sought info tobacco/drug/alcohol	0.229	-0.027	0.379	0.022	0.486	1096

Continued on next page...

... table 12 continued

Variable	Mean C	SW+P	p-values	SW	p-values	N
		(0.030)		(0.032)		
Sought info nutrition	0.427	-0.047	0.190	0.025	0.502	1097
		(0.036)		(0.037)		
Sought info medicines	0.297	-0.039	0.232	0.044	0.203	1095
		(0.033)		(0.035)		
Sought info health centers	0.311	-0.022	0.526	0.030	0.385	1097
		(0.034)		(0.035)		
Sought info health insurance	0.373	0.016	0.659	0.025	0.485	1095
		(0.036)		(0.036)		
Total: number of info sought	3.769	-0.316	0.146	0.395*	0.077	1082
		(0.217)		(0.223)		
Total: sought info	0.869	-0.044*	0.093	0.028	0.251	1082
		(0.026)		(0.024)		
Good general health	0.839	-0.017	0.544	-0.035	0.220	1097
		(0.028)		(0.028)		
Good physical health	0.833	-0.042	0.142	-0.016	0.561	1098
		(0.029)		(0.028)		
Good psychological health	0.807	-0.011	0.716	-0.082***	0.009	1096
		(0.030)		(0.032)		
Hopeless Beck (>8)	0.127	-0.003	0.912	-0.028	0.288	877
		(0.028)		(0.026)		
Did training course(s)	0.420	0.075**	0.042	0.052	0.160	1092
		(0.037)		(0.037)		
Participated workshop(s)	0.220	0.051	0.107	0.035	0.270	1082
		(0.031)		(0.031)		
Worked	0.751	0.024	0.439	0.003	0.921	1091
		(0.031)		(0.032)		
Number of training courses	0.520	0.181**	0.030	0.092	0.115	1092
		(0.083)		(0.058)		
Number of workshops	0.597	0.163	0.315	0.112	0.504	1082
		(0.163)		(0.167)		
Nb weeks worked	20.641	0.513	0.701	1.857	0.182	1073
		(1.335)		(1.389)		
Number of meetings counsellor	5.744	0.189	0.634	0.093	0.815	1092
		(0.397)		(0.395)		
Have a job project	0.287	-0.039	0.231	-0.033	0.322	1080
		(0.033)		(0.033)		
Thinks higher chances to get job	0.297	0.047	0.171	0.057	0.104	1084
		(0.035)		(0.035)		

Note: Mean C gives variable mean in the control group. SW+P gives the impact of physician plus social worker intervention versus control group, robust standard errors are in parentheses below. p-values gives per comparison (p.c.) p-values and (where applicable) family-wise p-values below in italics corresponding to the left column effects. See the Appendix for a description of the families. SW gives the impact of social worker intervention versus control group. N gives the number of observations in the regression. * stands for p.c. p-value<0.1, ** for p.c. p-value<0.05 and *** for p.c. p-value<0.01.

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List of Acronyms

BMI Body Mass Index

BSJ Baromètre Santé Jeunes

CETAF CEntre Technique d’Appui et de Formation des Centres d’examens de santé

CMU Universal (basic) Medical Coverage

CMU-C Universal Complementary Medical Coverage

CNML Conseil National des Missions Locales

DDASS Direction Départementale des Affaires Sanitaires et Sociales

INSEE Institut National de la Statistique et des Etudes Economiques

INSERM Institut National de la Santé Et de la Recherche Médicale

MDE Minimum Detectable Effect

MINI Mini-International Neuropsychiatric Interview

SIRS Santé, Inégalités et Ruptures Sociales