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Determinants of participation in a cardiometabolic health check among underserved groups

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ABSTRACT

Cardiometabolic diseases affect underserved groups disparately. Participation in health checks is also lower, widening health inequalities in society. Two-stage screening (non-invasive health risk assessment (HRA) and GP consultations for high-risk individuals) seems cost-effective, provided that drop-out rates are low in both steps. We aimed to explore the process of decision-making regarding HRA participation among underserved groups (45–70 y): native Dutch with a lower socioeconomic status (SES), Turkish, Moroccan, and Surinamese participants. We conducted a cross-sectional questionnaire study. The questionnaire comprised the following determinants: a self-formulated first reaction, a structured set of predefined determinants, and the most important barrier(s) and facilitator(s) for HRA completion. We used univariable and (stepwise) multivariate logistic regression analyses to assess which determinants were associated with HRA completion. Of the 892 participants in the questionnaire, 78% (n = 696) also completed the HRA. Moroccans and patients from GP practices with a predominantly non-Western population less often completed the HRA. A lower SES score, wanting to know one's risk, not remembering receiving the invitation (thus requiring a phone call), fear of the test result and/or adjusting lifestyle, perceived control of staying healthy, wanting to participate, and perceiving no barriers were associated with completing the HRA. We conclude that our 'hard-to-reach' population may not be unwilling to participate in the HRA. A more comprehensive approach, involving key figures within a community informing people about and providing help completing the HRA, would possibly be more suitable. Efforts should be particularly targeted at the less acculturated immigrants with an external locus of control.

1. Introduction

Cardiometabolic diseases (cardiovascular disease, diabetes, and kidney disease) are leading causes of death in high-income countries (WHO, 2008). An increased risk of cardiometabolic disease is associated with a lower socioeconomic status (SES) and ethnicity (Mackenbach et al., 2008; Mackenbach et al., 1997). Among ethnic minorities in the Netherlands, cardiovascular disease is particularly prevalent among Surinamese and Turkish people (Bos et al., 2004; Leest van et al., 2002; Dijkshoorn et al., 2003). Turkish, Moroccan, and especially Hindustani Surinamese people have a higher risk of developing diabetes (Kunst et al., 2008). To early identify individuals with an increased risk of cardiometabolic disease, health checks are implemented worldwide (Dalton et al., 2011; Brunner-Ziegler et al., 2013; Amoroso et al., 2009). Several studies concluded that two-stage screening could be a cost-effective strategy (Khunti et al., 2012; Pandya et al., 2014). Two-stage screening usually refers to a non-invasive risk stratification tool, followed by a blood test during an assessment by a healthcare professional. The Dutch cardiometabolic health check imbedded in primary care follows this two-stage approach, comprising a short health risk assessment (HRA) to be completed at home, and two prevention consultations (PCs) with the GP for high-risk individuals according to the HRA (Dekker et al., 2011). This approach implies that patients can refrain from participation on two separate occasions (Assendelft et al., 2012). High drop-out rates may induce an even greater problem

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among underserved groups, as ethnicity and SES are inversely related to health check attendance (Dryden et al., 2012). These groups usually have greater difficulties in making an informed decision about participation (Smith et al., 2014). Presumably, higher participation rates in stage one (as a result of more informed decision-making) lead to higher participation rates in stage two. To increase informed decision-making about HRA completion, insight into its determinants plays a pivotal role. Few studies specifically investigated reasons for participation in cardiometabolic health checks of underserved groups. Studies reporting determinants in these populations exclusively focus on physical assessments at a doctor's office, not two-stage screening with risk stratification as a first step. Therefore, we conducted prior qualitative research on determinants of hypothetical HRA completion (Groenenberg et al., 2015a). These determinants were mainly of a cognitive nature and included (flawed) risk perceptions, health negligence, (health) illiteracy, and language barriers. With the current study we aim to explore the process of actual decision-making about HRA completion. Research questions were: (1) what are participants' self-formulated first reactions regarding the invitation?; (2) what predefined determinants play a role in completing the HRA?; (3) what are participants' most important barriers and facilitators?; and (4) which of the aforementioned determinants are associated with actual HRA completion?

2. Methods

2.1. Design and study population

This cross-sectional study is part of a larger study investigating reach and participation of underserved populations in the Dutch cardiometabolic health check.

Between May 2012 and December 2013, patients from six general practices were invited to participate. The six practices were located in The Hague and surroundings, and encompassed both large group as well as solo practices, and urban as well as rural environments. Patients had to be native Dutch with a lower SES or Turkish, Moroccan, or Surinamese. Ethnicity is not registered by GPs in the Netherlands, this was estimated by the researchers based on family name, and was subsequently checked by the GP. The GP also selected the native Dutch patients with a lower SES, which was afterwards corroborated with a neighborhood SES score (average income, proportion of individuals with a low income, with a low education, and without a paid job) (Social and Cultural Planning Office, 2014). These attributes are captured in one parameter: the socioeconomic status (SES) score and has been shown to be associated with deprivation in a community (Reijneveld, 1998). This score is assessed every four years by interviewing persons representing nearly each street in the Netherlands. The average SES score in the Netherlands is 0.17. Categorization of the SES scores was as follows: average to higher SES (score > 0); lower to average SES (score 0 till −1.9); lower SES (score −2 till −3.9); lowest SES (score ≤ −4).

Patients had to be 45–70 years old except for the Hindustani Surinamese. Their lower age limit was 35 years because of their genetically increased risk of diabetes. Exclusion criteria were: having (had) cardiometabolic disease, using drugs against cardiometabolic disease, or having had a complete cardiometabolic risk inventory less than a year ago (Appendix A). All patients who met the eligibility criteria (n = 1644) were invited.

Three culturally targeted and personalized invitation steps were tested following an increasingly (cost-)intensive 'funneled' design: (1) all patients received a postal invitation; (2) non-reached were approached by telephone; (3) finally non-reached were approached face-to-face by their GP (Appendix B). The latter step was not included as participation rates were very low. Postal materials were provided in Dutch, and in Turkish/Arabic for Turkish/Moroccan patients, and included the questionnaire and the HRA simultaneously in one package. Patients were called by Turkish, Arabic, and Berber (oral-only language) speaking research assistants.

Ethical approval was given by the Committee Medical Ethics from the Leiden University Medical Center. The study followed an 'opt-out procedure' where patients could sign a response form when not interested in participation. The design and results of the larger study have been described in detail elsewhere (Groenenberg et al., 2015b).

The study population of this study consisted of those patients who completed the determinants questionnaire (n = 892), divided into two groups: HRA completers and non-completers. Postal responders filled out a self-administered written questionnaire and telephone responders answered the questionnaire by phone.

2.2. The questionnaire

The postal- and telephone-administered questionnaires followed the same structure and were based on our previous work (Groenenberg et al., 2015a). This qualitative study was embedded in a theoretical framework based on the I-change model (Fig. 1), which aims to explain health behaviors and has been applied in studies among native and immigrant populations (Knops-Dullens et al., 2007; Vries de et al., 2005; Nierkens et al., 2006; Nierkens et al., 2005). The most important determinants in the qualitative study were turned into (simply formulated) questions. The questionnaire was pilot-tested among the target population. We incorporated three steps in the questionnaire: (1) a self-formulated first reaction regarding the invitation for the health check, (2) a structured set of predefined determinants that the participant could indicate to be of importance to his/her HRA completion, (3) most important barrier(s) and most important facilitator(s) regarding HRA completion (Appendix C).

2.2.1. Step one: self-formulated first reaction

The questionnaire started with one (open answer) question prompting participants to express their thoughts about the invitation. Any reaction was possible: from positive to negative attitudes regarding the initiative, and from practical barriers to positive social influences. This and the open answer questions of step three were coded inductively and converted into a code tree. Coding was performed by the first author and randomly double coded by the second author. Both authors categorized the codes in the code tree conform the I-change model constructs (Appendix D). Codes and constructs were entered into SPSS. The first reactions were then computed into dichotomized variables representing the different reactions (0 = not mentioned, 1 = mentioned).

2.2.2. Step two: structured set of predefined determinants

The questionnaire continued with a structured set of predefined (multiple-choice) determinant questions. These determinants were categorized under the appropriate I-change construct (see Results, Table 3). Most questions consisted of three answer categories (mostly 'no', 'a little', 'yes'), which were dichotomized for a better distribution.

2.2.3. Step three: most important barriers and facilitators

The final two (open answer) questions aimed to unravel what participants perceived to be the most important barrier(s) and facilitator(s) for HRA completion. The telephone questions were rephrased to match the willingness to complete the HRA: e.g. when the participant indicated to be willing to complete the HRA, the barrier(s) question was rephrased as 'what could be a disadvantage for you of completing the HRA?'. Coding of these questions was performed as described under step one.

2.3. Measures

Primary outcome measure was HRA completion (no/yes). Patient characteristics were: gender, ethnicity, age, and SES score. We also