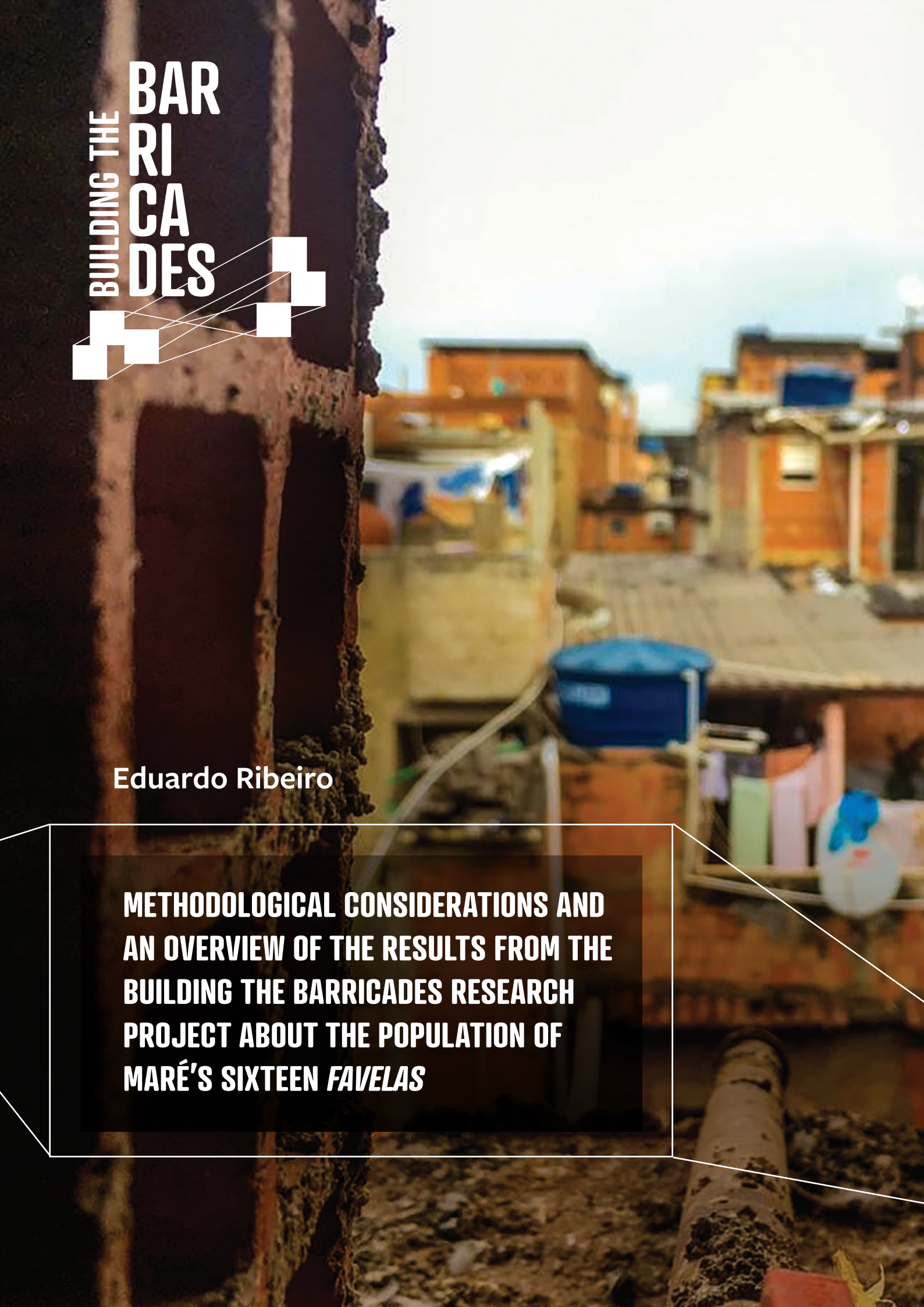

Eduardo Ribeiro

METHODOLOGICAL CONSIDERATIONS AND AN OVERVIEW OF THE RESULTS FROM THE BUILDING THE BARRICADES RESEARCH PROJECT ABOUT THE POPULATION OF MARÉ'S SIXTEEN *FAVELAS*

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1. INTRODUCTION

The intention of this study has been to apply experiences and perspectives from different academic disciplines to interpret the rich and extensive data gleaned from 1211 quantitative interviews with residents of Maré's sixteen *favelas*. Maré is located in the Leopoldina area of Rio de Janeiro, a suburb of the city. Our purpose has been to examine the data and territory through the lenses of the social sciences, psychiatry, economics and culture, each area offering its own narrative, interests, issues and hypotheses that are also informed and theoretically driven by discussions and a means of approach unique to each field.

In this text, we have another task. We are looking to provide an overview based on the 1211 quantitative interviews, following a systematic examination of the responses and results. One of the primary objectives has been to present the profile of the adult population living in Maré's sixteen *favelas* according to the different topics covered by this household survey.

In addition to the more general descriptive elements of the study, there are substantial findings regarding the population's characteristics and the relationship between phenomena and variables, which could be more deeply examined. These findings are the result of dialogues between members of the multidisciplinary team, with whom we debated analytical biases and discussed suggestions for cross-referencing, specific frames or cross-sections that, even without being addressed in this text's topics, are worthy of note. They also serve to highlight the diversity and analytical potential of the data, inviting new researchers to undertake future analyses.

Finally, in the spirit of sharing empirical materials and results, the publication of these results will allow future perspectives about this data to be revealed and new narratives about the lives of Maré's residents to be made. Furthermore, the list of operational issues that were encountered can inform specialised readers about the team's research paths and technical decisions. Thus, a final objective of this text is to serve as a methodological essay in which theoretical and conceptual considerations, design issues, procedures and details about data collection, and the processing and development of analyses, are made available. The aim is to present a brief overview of how the data was produced, showing its validity and strengths, but also the difficulties that came up and the consequential limitations that arose from these challenges.

The text has been divided into four sections. After this introduction, the three subsequent sections constitute its substantive core. The second section highlights methodological considerations, while sections three and four present the data, dealing with the more general profile of Maré's population, and the conceptual as well as empirical relationships between constructs and variables of special interest, respectively. As this is a text with a descriptive, exploratory and introductory goal, we opted not to include a section with conclusions or final considerations. Instead, the ambition is for the text, as well as the analyses, to remain open to the possibilities of further interpretation and future studies.

2. CHOICES ALONG THE WAY: AN ESSAY AND DESCRIPTION OF METHODOLOGICAL ISSUES

2.1. FEATURES OF THE INVESTIGATION

The main data and results used for the analyses in this study were obtained through a research method known as a survey – a type of social investigation based on structured interviews conducted by researchers using a questionnaire, generating quantitative information on determined characteristics of a certain population or group of people.

A large number of surveys are regularly administered by government statistical agencies, such as the IBGE, Brazil's Geography and Statistics Institute, but they do not always provide regular, up-to-date information on specific themes for certain territories. For this reason, initiatives for producing quantitative data such as this one, which was carried out independently and was focused on a particular set of theoretical, empirical and practical questions, make a great heuristic contribution to their relevant academic fields.

Using a multidisciplinary approach, the project Building The Barricades, and this survey in particular, offers contributions to the fields of mental health, epidemiology and collective health, as well as research on patterns of legal and illegal drug use. In the social sciences, its contribution also extends to research on exclusion and poverty in *favelas*; studies on the practice and use of leisure and cultural activities in *favelas*; quantitative analyses of living conditions in *favelas* in terms of satisfaction, happiness and well-being; and fields of research dedicated to investigating exposure to community violence and its social impacts, fear and feelings of insecurity.

This plurality of information was produced from a single neighbourhood in the municipality of Rio de Janeiro, but which is nonetheless territorially larger and more populated than most Brazilian municipalities. The household study's reference population was adults, aged eighteen or over, living in the sixteen *favelas* of Maré.

Additionally, this survey took place at a time when available statistical and sociodemographic information was going out of date. The last national demographic census was carried out in 2010, and another census carried out specifically in Maré (Redes, 2019) refers to the year 2013. Therefore, a survey like this becomes particularly relevant if we consider the imminence of a national statistical blackout, with the increasingly real possibility of the 2020 demographic census being postponed due to the Covid-19 pandemic.

This household questionnaire can be described as a cross-sectional observational survey. Unlike experimental approaches in which, in an intentional and controlled way, there is a direct intervention in the research environment,[2] observational studies are empirical field research in which data is collected directly from the researched context, being observed in a 'natural' locus and seeking to intervene as little as possible in the conditions in which, commonly, the social phenomena and facts to be observed occur.

In turn, a cross-sectional study has a 'synchronous' character, collecting data only once, at a single point in time. Such studies present a picture of a certain population during a fixed period, represented by a reference date. The interviews that make up this household survey were mostly carried out in the second half of 2019, between July and December. Later, a small number of interviews were completed in January and February 2020. Considering this application period and also subsequent sample calibration procedures,[3] the reference date for the estimates is 1 July 2019.

2 For example, by designating some individuals to control groups established using random criteria; control of the research's context to avoid interference from factors unrelated to the phenomena of interest; or even a direct intervention by the researcher in the observed relationship, with variables selected and imposed, functioning as 'causes'. The investigator introduces an artificial condition with the aim of verifying the effect of this intervention on the relationship under investigation.

3 A point that will be dealt with in a later section.

2.2. TOPICS AND SECTIONS

The survey we used as a data collection instrument was structured into six sections of questions. The first, more operational, section contained metainformation about the interview, such as the identification of the interviewee and the household, the completion date and the interviewer responsible, the number of residents eligible to be interviewed, the household's stratum and geographical location. The other, more analytical, sections contained substantive questions about the living conditions and profile of Maré's population.

The first section of this article addresses the sociodemographic profile of the person interviewed. In addition to sociodemographic questions, such as those about gender, age and ethnoracial background, it also addresses migration and length of residence in Maré, and gathers information about schooling, income and occupation as well as family characteristics and family arrangements. This is essentially a contextual section, used to describe and develop generalisations about social groups and to establish distinctions between groups of people with certain characteristics.

The next section investigates access to territorial networks and cultural and community practices. In it, active social networks in Maré are addressed based on questions about residents' cultural, artistic and leisure habits and practices. As well as questions about knowledge and frequency of visits to arts and cultural spaces, it also maps the network of cultural venues and facilities present in the territory. In addition to culture, art and leisure, the section allows us to raise the issue of digital inclusion and internet use, also asking questions regarding the practice of sports or physical activities, religious affiliations and practices as well as community participation. There is also a specific question about the interruption of these practices due to the high level of violence in Maré.

The third section, on health and mental health, provides information on participants' knowledge and access to the health network in Maré, including facilities and local units that promote mental health. This section also makes it possible to estimate the physical and emotional health conditions of Maré's population, map the main diseases and symptoms as well as check demand for treatment. There are also questions asked about possible obstacles to accessing health services due to violence in the community.

Finally, a subcategory of this section on health and mental health focuses on the Brief Symptom Inventory (BSI), a set of fifty-three questions on psychological and emotional symptoms noticed by the people interviewed in the week before the interview (Derogatis and Melisaratos, 1983). This psychological and symptomatological assessment has made it possible to calculate a series of indicators used to access situations of psychological and emotional distress and, therefore, estimate the mental health conditions of the population residing in Maré.

The section on patterns of legal and illegal drug use investigates the consumption of different substances by the population, ranging from common legal substances (such as tobacco derivatives and alcohol), and common illegal substances (such as marijuana, cocaine and crack) through to illegal substances less common in Rio de Janeiro. An existing structured and technically consolidated instrument called ASSIST[4] (SENAD, 2014) was used to screen and detect the use of and involvement with alcohol, tobacco derivatives and other psychoactive substances. ASSIST addresses the frequency of use and problems associated with substance misuse, including questions about addiction and withdrawal, health problems, social, legal or financial problems and changes in routine. The instrument has also allowed us to calculate specific involvement scores for each substance.

The fifth section relates to experiences of violence in the territory, mapping the different types of community violence experienced daily by the residents of Maré and, above all, measuring the exposure to armed violence. This section collected information on the incidence and intensity (frequency) of exposure to – and being a victim of – armed violence. This has made it possible to observe phenomena such as recurrences of being a victim and frequency of incidents stemming from multiple sources of violence and risk. The section also covers subjective aspects of experiencing persistent violence in Maré, considering reports of fear and feelings of insecurity as well as the effects perceived by the population in terms of costs, disturbance of routines, traumas and impact on physical and emotional health.

4 Alcohol, Smoking and Substance Involvement Screening Test (ASSIST).

Finally, the sixth and final section focuses on the well-being and quality of life of Maré's population, in subjective terms, based on their perceived satisfaction in relation to different aspects of life. The questions in this section stem from an abridged instrument called MANSA,5 which assesses subjective well-being and quality of life, including questions about general satisfaction with life as a whole, and personal satisfaction with more specific aspects such as occupation and work, financial situation, family, home and friendship relationships, sex life, housing conditions, security, leisure time and physical and mental health.

2.3. MAIN CONSTRUCTS AND DIMENSIONS OF ANALYSIS

In its planning, Building The Barricades formed a set of hypotheses about the relationships between experiences of violence and feelings of insecurity, and a set of psychosocial outcomes in the fields of mental and emotional health, well-being and quality of life for the population of Maré (and populations in general). Such relationships would also be mediated by experiences such as the participation in cultural and leisure practices, patterns of drug use and access to formal and informal care networks. The relationships between all these elements are complex, multifactorial and interdependent.

The theoretical understanding of this relational structure can be facilitated by its breakdown into simpler questions and hypotheses about how certain dimensions relate or the phenomena which are of interest to the research behave. It should be noted that each of these dimensions and each of the listed phenomena (e.g., violence, insecurity, well-being and quality of life) correspond to intellectually constructed abstractions. They are notions or concepts and, as such, require processes to detail and define them, making them ready to be observed and recorded as empirical evidence and, later, described, classified or correlated – procedures known collectively as analysis.

The task of translating a concept into one or more measurable scales is called operationalisation. This, in turn, has a theoretical component that defines and represents a concept in a clear, precise and explicit way, providing enough information to clarify and communicate unequivocally the phenomenon under investigation. This process of conceptual definition, included in the discussion of a specific field of knowledge, generates theoretical variables called constructs.

A construct is a theoretical variable that is relevant from a substantive point of view and that, often, cannot be observed or measured directly (Cano, 2002). Classic examples of constructs in psychology and sociology are intelligence and personality, love, happiness and aggression. In turn, considering the objectives and hypotheses of our study, as well as the literature reviews and state-of-the-art surveys carried out by the different project teams, several constructs can be listed. Amongst the main constructs used are: exposure to armed violence, subjective experiences of violence, fear and feeling insecure, barriers to cultural consumption and accessing cultural practices, involvement with drugs and psychoactive substances and subjective feelings of well-being, mental or emotional health. There are also a number of questions that can be used to convert these theoretical variables into measurable indicators in the different themed sections of the household survey.

Since constructs are theoretical variables that commonly represent phenomena or theoretical concepts that are not directly observable or measurable in automatically recognisable natural units, such measurements must be carried out indirectly, based on operative variables. Hence, a second component of operationalisation is given by an operational definition – that is, a set of instructions or procedures for measuring conceptually explicit variables. The choice of these criteria and decision-making rules, however, is arbitrary, and depends on the traditions and interests of the academic field, theoretical and analytical perspectives, the researchers' own intuition and experience, et cetera. Therefore, there are always different ways to operationalise a theoretical variable and to measure a construct; the most important thing is that all these rules and decisions are clear and well-founded.

5 Manchester Short Assessment of Quality of Life (MANSA).

In our household survey, there were at least three sets of pre-established constructs clearly operationalised in indicators already consolidated and validated in previous works. These were covered by specific instruments and collection protocols and correspond to BSI, MANSA and ASSIST, each of which enables the calculation of a set of indicators. In addition to these, exposure to armed violence, subjective experiences of violence and cultural participation were constructed with new proposals for operationalisation, exclusively developed within the scope of the project.

From the fifty-three questions of the BSI, the levels of mental and emotional distress could be measured using the General Symptom Index (GSI).[6] It is calculated for each person by finding the average of the valid items; that is, the sum of the results of each answer divided by the total number of questions that the person answered (Derogatis and Melisaratos, 1983; Canavarro, 1999). People who answered at least forty-one of the fifty-three inventory items were accepted as valid cases, accepting a maximum loss of about 20%. A similar procedure was used to calculate specific indices for each of the nine symptomatic dimensions: somatisation, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism.

Based on twelve of the twenty-four questions present in MANSA (Priebe et al., 1999), a Subjective Quality of Life Index (SQOL) was calculated. Participants' feelings of well-being were assessed using subjective questions about how satisfied they felt about different areas of their lives. Using these twelve variables, satisfaction was recorded on an ordinal, seven-point scale ranging from extreme 1 (very dissatisfied) to extreme 7 (very satisfied).[7] The indicator was calculated as the average of the scores obtained in the questions answered by the person. For a case to be considered valid, the person needed to answer at least nine of the twelve questions.

As seen, the section in this article on drug and substance use patterns has adopted ASSIST, an instrument developed as a World Health Organisation (WHO) initiative to scan and detect substance use and consumption. Using six questions, the instrument makes it possible to calculate empirical measures of 'involvement' with each of the ten mapped substances. A protocol establishes a score given to each category or variable response.8 As an example, an alcohol involvement index is calculated by summing the scores, assigned via protocol, for each person. There is also a classification for the scores obtained by this sum as well as the severity of use, indicating whether there is a need for a health intervention and, if substance use is detected, whether it requires moderate care (a brief intervention) or a more in-depth intervention and subsequent referral to more intensive treatment.

The section on access to social networks and cultural practices has made it possible to observe Maré residents' social networks, lifestyles and cultural consumption based on their habits and artistic and cultural practices. The participation and frequency with which people got involved in art, culture and leisure practices have been used to calculate cultural participation indices (CPIs). The latter has sought to measure levels of cultural access, as carried out in other works (Grossi et al., 2011; Cocozza et al., 2020).

Measures have been designed to capture the incidence of certain activities, recording whether the person practised them or not. Frequency of participation has also been measured, using the values of a five-point ordinal scale, which ranges from 0 (does not practise) to 4 (daily practise).[9] Furthermore, such activities and practices have been classified as internal or external, distinguishing those that occur (or may occur) at home from those practised outside the home. This allows a means to interpret what participants think about the issue of community violence, in addition to

6 In English, the index was originally called the Global Severity Index (GSI), a translation of which in Portuguese is *Índice de Gravidade Global*. The other Portuguese version, Índice Geral de Sintomas (IGS), appears in Canavarro (1999).

7 The classification of variables follows the scale: 1 – very dissatisfied; 2 – dissatisfied; 3 – somewhat dissatisfied; 4 – neither satisfied nor dissatisfied; 5 – somewhat satisfied; 6 – satisfied; 7 – very satisfied.

8 In the question about frequency of substance use, for example, if the person stated 'never' having used the drug or substance in question, the protocol indicates that they should receive a score of zero. If the answer is '1 or 2 times', the person receives a score of 2. If the answer is 'monthly', 'weekly' or 'daily or almost every day', the protocol indicates that the scores should be 3, 4 and 5, respectively. According to the protocol, each ASSIST question used has a certain set of scores.

9 The frequency of cultural, artistic and leisure practices was registered with scales that had the following classification: 0 – does not practise; 1 – less than once a month; 2 – at least once a month; 3 – at least once a week; 4 – daily or almost every day.

aspects related to emotional and mental health symptoms, and even contexts related to the Covid-19 pandemic. Similarly, activities and practices can be classified as individual and collective, helping to address another set of substantive issues. The questions also asked respondents to record their internet use and the leisure, culture and entertainment habits they engage in. The table below shows the items taken into consideration to calculate indicators.

Table 1: Access to social networks and community and cultural practices

Leisure activities, entertainment and cultural consumption in the last three months

Watched movies and/or series:
- at the cinema
- on the internet
- by other means (DVD, blue-ray, VHS, TV)

Watched videos on the internet.

Watched television.

Watched a play at the theatre.

Listened to music:
- live
- on the internet
- by other means (CD, tape, vinyl, radio)

Read a book:
- online
- in print

Went to a museum.

Visited the site of a museum or work of art to search for information or explore content.

Artistic practices in the last three months

Danced	Did creative writing
Acted or performed theatre	Painted
Sang or played an instrument	Took creative photographs

Source: Self-generated, 2021

Two indicators have been calculated from the survey section results on experiences of violence in the territory. The first is an index of exposure to armed violence (EAVI), while the second is called the subjective violence index (SVI). This section of the questionnaire included questions developed with the support of qualitative consultations, based on reports from Maré residents as well as professionals working in the community, and on data produced regularly by the NGO *Redes da Maré*, and published in the newsletter The Right to Public Security in Maré (Redes da Maré, 2018). It also used questions and content from the Addiction Severity Index (ASI) (Kessler et al., 2012).

The EAVI[10] was developed from self-reported experiences of exposure to armed violence that occurred in Maré in the twelve months prior to the interviews. The index combines information on the incidence of episodes (taking into account the number of experiences objectively encountered by people) with information on the intensity of the experiences (taking into consideration the frequency of such episodes being witnessed). In the latter case, recurring incidences of victimhood are included – when a person goes through the same type of experience more than once or when the same person goes through a variety of experiences. The EAVI was calculated by adding together four items related to the dynamics and consequences of the armed groups' actions on Maré's territory as well as the government responses and police actions. It should be noted that these dynamics go beyond shooting incidents and also involve the dynamics of territorial control, which include interactions between armed groups, police and Maré's resident population, such as in the cases of assaults and beatings.[11] These questions had a seven-point ordinal measurement scale,[12] and the sum of the scores for these four items has been divided by the number of valid cases. Only respondents who completed three of the four items are considered valid cases. The table below shows the items considered in calculating the indicator.

Events experienced in the last 12 months
Was caught in the middle of a shooting in Maré.
Was in a situation where they saw someone being beaten or assaulted in Maré.
Was in a situation where they saw someone being shot or killed/murdered in Maré.
Someone close to them was murdered or shot in Maré*.

* For this particular item there was no temporal reference of this having occurred in the last twelve months.

The SVI[13] has been drawn up based on reported feelings of fear, sense of risk, concern and feelings of insecurity experienced by Maré residents every day, which are related to the dynamics of the phenomenon of armed violence. In this sense, these reports can be interpreted as another (more subjective) form of exposure to and experience of armed violence. The index counts how frequently people feel threatened and express certain concerns about the issue of violence, and how these are incorporated into their routines. The SVI has been calculated as the sum of nine items, with a five-point ordinal frequency scale.[14] The sum of the scores of these four items has been divided by the number of valid cases (only people who answered at least seven of the nine items were considered valid cases). The following table shows the issues considered for calculating the index.

10 The exposure to armed violence index (EAVI) was used in different ways by the Building The Barricades research teams and appears with other names like the experience of violence index (EVI), or of objective violence (OVI) as opposed to the subjective violence index (SVI). It also appears as the exposure to community violence index (ECVI), in line with international literature.

11 There was a fifth question, which recorded whether the person's house had been raided in the last 12 months. Although this is a recurrent violation, common in residents' interactions with both armed groups and the police, it was decided not to include it in the index. This choice was made in order to maintain comparability with data from another element of the project, a survey administered to drug users. As many of these people live on the streets, this question was not asked in that questionnaire.

12 The frequency of exposure to armed violence scale had seven response options: 0 – never; 1 – once; 2 – twice; 3 – three times; 4 – four times; 5 – five times, 6 – more than 5 times.

13 Also called the fear and feeling of insecurity index (FFII).

14 The ordinal scale of how often the person felt afraid had five response options: 0 – not afraid; 1 – rarely; 2 – sometimes; 3 – often; 4 – always.

Table 3: Subjective experiences of exposure to armed violence

How often are you afraid of...
Being hit by a stray bullet in Maré?
Someone close to you being hit by a stray bullet in Maré?
Suffering a physical or verbal assault in Maré?
Someone close to you suffering a physical or verbal assault in Maré?
Suffering economic/material losses or losing work due to violence in Maré?
Having to engage in illegal or illicit activities?
Someone close to you being involved in illegal or illicit activities?
Saying what you think or feel in Maré?
Moving around Maré?

Source: Self-generated, 2021

2.4. SAMPLING DESIGN ISSUES AND SAMPLE LIMITS[15]

The sample used in the household survey was probabilistic with respondents selected randomly, but it has followed a complex plan or sampling design[16] – with stratification procedures and unequal probabilities in selecting individuals for the sample. In addition, the sampling has been carried out in two stages: first, sampling households (the primary sampling unit); second, selecting one person aged eighteen or over within each visited household (the secondary sampling unit).

The research territory has been divided into three geographical strata, with each one consisting of a small number of adjacent *favelas* in Maré. Such strata have been defined according to a methodology already established in research carried out by *Redes da Maré*, taking into account the location of the territories, their demarcation by public highways and shared public facilities, urban and housing characteristics as well as specific social dynamics, including the dominance of different regimes of armed groups. These strata constitute estimation domains, functioning as independent samples for which statistics are representative of their respective territories and populations.

We planned to make the samples from the three strata the same size ($n1 = n2 = n3 = 400$), even though their respective territories of reference contained populations of quite different sizes. The first stratum (Area 1) is a territory under the control of a drug-trafficking faction, comprising four of Maré's sixteen communities and containing 38% of Maré's adult population. The second stratum (Area 2) is under the control of another drug-trafficking faction, consisting of nine communities and 48.5% of the population. The third and final stratum (Area 3) is made up of three communities and has only 13.5% of Maré's adult population. This territory is dominated by a militia group, although one of its *favelas* was under the control of traffickers at the time the interviews were conducted.

15 This section was occupied with sampling aspects directly linked to other methodological discussions about the validity and reliability of the research findings. More details about this sample can be accessed in the text *Methodological Process – Study 1* and also the technical document *Description Of The Sampling Plan*.

16 This differs from simple random samples in which all the potential research elements have equal probability of being selected for the sample.

The fact that the strata's samples are the same size, even though the resident populations in these areas are different, has affected the probabilities of selecting people to participate in the research. In practice, a resident in Area 3 has a greater chance of being in the sample and a proportionately greater population weight than a person living in one of the other two areas, if no means of adjustment is considered when it comes to the analysis.

It is worth mentioning that the territorial configuration and the way in which the strata have been demarcated directly affects some of the main events and phenomena of interest to the research, specifically those related to the experiences of being a victim of – and being exposed to – armed violence. In this sense, the disproportionality introduced by the sample design strongly interferes with the estimates of exposure to violence and victimhood, which is calculated for the whole of Maré's *favelas*.

The address register from the Population Census of Maré (Redes da Maré, 2019) was used as a sampling frame in the first sampling stage, and households were selected within each stratum using this register. An inverse sampling scheme (IS) was used in this process, in which the interviewers received successive lists of addresses until the number of complete interviews foreseen in the sample calculation was reached (or until the designated research area was exhausted). Once the household was selected, the second sampling stage took place, in which one of the household's adult residents was randomly selected with equiprobability from amongst those eligible (aged eighteen or over). Within the households, the person was selected using a simple random sampling scheme.

The inverse sampling procedure was used in order to mitigate the non-responses commonly observed in classical household surveys and to reduce the waste of using unnecessarily larger samples than expected, thus also reducing the costs of administering the survey. It took 3136 household visits to carry out 1211 interviews. Therefore, we needed to sample and visit households 2.6 times the number of interviews to reach the stipulated sample size of 1200 households.

Despite only a small number of units being ineligible – because they were not residential (which occurred during 25 visits) or because properties were vacant or unoccupied (72 visits) – it was not possible to conduct interviews during 1828 of the visits, which is equivalent to a non-response rate of around 60%. The non-responses can be broken down into two components: the first relating to individuals, where the property is occupied and an eligible person is chosen but the interview cannot be conducted; the second relating to properties, where it is not possible to access household residents.

The first component of non-responses was less frequent. They included: explicit cases of refusal, either from the household as a whole (169 cases), or from the person selected to be interviewed (32 cases); non-contact cases where the selected person was absent on all visits including scheduled ones (201 cases); and cases where the selected person was travelling or in hospital for health reasons (12 cases). There were also exceptional cases where there was no adult person in a fit state to be interviewed for reasons of physical or mental disability or because of drug misuse (14 cases). In summary, there was a total of 428 individual non-responses, equivalent to 23.4% of non-response cases.

The property non-responses were more extensive and corresponded to the remaining 76.6% of non-response cases. These included dwellings or addresses that could not be located or were non-existent (352 visits) and cases where properties were classified as closed or inaccessible occurred on 1048 of the visits.

The failure to locate dwellings and addresses was due to the precarious urban conditions characteristic of many of Rio's *favelas*: the address system does not follow a consistent order; narrow alleys and passages were difficult to locate; and there were unnamed streets and homes without door numbers. Any doubt regarding the property's correct location led to the decision to classify the home as non-existent, or as not found.

Other urban and social characteristics, especially those related to public security, may have contributed to producing the high number of closed or inaccessible dwellings. A closed property is one where no contact has been established because all the residents were absent during different visits and attempts to conduct the interviews. Inaccessible properties included remote areas or ones that were difficult to access, and also because of problems related to the interviewers' security. These two interview outcomes were both recorded as 'inaccessible' in a log of the visits, so it was not possible to separately assess their weight and role in generating household non-responses.

In the case of closed dwellings, we surmised that the inability to make contact with at least one resident was to do with the number of people in the household and/or a non-domestic lifestyle. The main and perhaps most obvious of these characteristics is the residents' type of occupation, since those who work (in occupations outside the home) tend to spend more time away, especially during business hours, making it difficult to carry out an interview. In addition, long working hours and longer commuting times are common in low income and insecure jobs.

In the specific case of Maré, based on data from the 2010 Demographic Census carried out by IBGE, 32% of employed people worked forty hours a week (eight hours a day) and another 47% worked longer hours. In the same survey, 43% of employed people spent between thirty minutes and one hour commuting between home and work, and another 18% had a journey of more than one hour. In a later survey, carried out by *Redes da Maré* in 2014 (Silva, Silva and Marinho, 2015), 45% of the people interviewed said they spent between thirty minutes and one hour commuting between home and work, and 17.7% stated they spent more than one hour – data which is very close to that found by IBGE. The survey by *Redes da Maré* also researched the start and end times of commuting, confirming that people left for work between 6am and 8am, and mostly returned between 4pm and 7pm. Considering working hours and commuting times, a significant portion of the employed population would be away from home on working days until at least 8pm to 10pm.

It should be noted that, for reasons related to the interviewers' security in the field, evening hours for collecting date were only scheduled in exceptional circumstances – when it was impossible to arrange the interview at another time. Consulting the metadata, we found that just over 20% of the interviews were conducted during evening hours and 18% of the interviews were conducted on weekends (especially on Saturdays). Thus, 454 (37.5%) of the 1211 interviews were conducted outside business days and hours. This may explain why there was no evidence of major biases in the percentages of employed and non-employed people. The percentage of non-employed people in the sample was equal to 44.1% and changed little even after the application of calibrated weights (43.1%), which corrected disproportionality of sex, age and the region where the property was located. This estimate was still relatively close to that calculated by the 2010 Demographic Census sample, which showed the percentage of people aged over eighteen who were not employed in Maré was 38.2%.

On the other hand, evidence from our sample, such as the considerable percentage of households with one or two residents (42% of the sample) and the fact that the average number of residents aged over 18 from our sample's results (2.14) varies little compared with previous research results – 2.15 in the 2010 census and 2.03 in the 2013 Maré census – shows no clear bias related to household size.

As not all metadata for the visits was systematised, we were unable to verify, for instance, on what days and times of the week such visits were made in order to observe whether all visits had attempted to contact household residents during non-working hours at least once, such as in the evenings or on weekends. In practice, the fact that a large number of interviews were carried out in the evening does not mean that the visits were made then and that the households were available in the evenings (or on weekends). The interviews carried out at these times may have occurred only in cases where the household members were previously found to be around during the day, the person to be interviewed was selected, and an appointment was scheduled for the evening. Finally, it would also be interesting to check the progression over time (weekly or monthly) and space (in the three strata) of the visits and these household non-responses.

In relation to inaccessible dwellings, these were due to the impossibility of reaching the property, including the inability to access apartments in buildings and residential compounds or even to access some streets. For example, due to security issues and the wish to control the movement of unknown people, it is common to find locked gates and fences barring access to some streets. This made it more difficult for interviewers to reach some of the households. In addition, this obstruction to access could also affect the security of the interviewers, both with regard to perceptions of the risk of moving in certain places as well as due to more objective occurrences of intimidation or shootings. During the period the survey was conducted, for example, at least nine police operations were recorded in the different territories of Maré, which resulted in interruptions and the cancellation or postponement of activities. Thus, violent incidents in Maré may have played a role in the cases of closed and inaccessible dwellings.

Although one of the purposes of reverse sampling was to reduce non-responses, the results of administering the survey suggested different outcomes according to the types of non-response. If on the one hand it considerably reduced the cases of individual non-responses (such as refusals). On the other hand, the sampling strategy did not react as desired in relation to the amount of closed or inaccessible households. This occurred as a result of both certain survey routines and field supervision, as well as of structural characteristics of *favela* territories. Even though there were no biases related to the number of people in the household and the proportion of non-employed people, the sample showed distortions and biases of availability according to sex and age, which were duly corrected by the calibration of the weights.

2.5. REFLECTIONS ON THE CHALLENGES OF MULTIDISCIPLINARY AND INTERDISCIPLINARY RESEARCH

2.5.1. MULTIDISCIPLINARY AND/OR INTERDISCIPLINARY

The Building The Barricades project proposed a methodological approach that was both multidisciplinary and interdisciplinary. In its multidisciplinary proposal, the project brought together professionals from different academic fields who focused on a set of topics and research questions. What characterises the multidisciplinary approach is the simultaneous study of the same object, observed under analytical perspectives and knowledge from different areas. The intention was for interpretations to be complementary and triangulated without, however, establishing connections between the disciplines that approach the common object in separate ways. The interdisciplinary approach focused on cooperation and collaboration between different specialties, producing specialised knowledge through the exchange of information and the establishment of relationships between different contents and perspectives.

In the planning stage, Building The Barricades pointed to collaborative and interdisciplinary practices, also highlighting the interinstitutional and transnational[17] character of the study. These were included as fundamental constitutive aspects to be incorporated in all studies and stages of the project. The research also proposed involving several actors, such as residents, workers and members of Maré's communities as well as civil society collaborators and university research teams.

All these proposals came to fruition. Different research, data and content production initiatives were carried out, conducted by disciplinary teams from the fields of social sciences, mental and collective health, the economics of culture and the arts. There were regular meetings with interaction and co-production between the teams. In addition, several actors were heard and collaborated with the study. However, the fact that the multidisciplinary and interdisciplinary work was carried out did not necessarily mean that it took place in a linear and smooth way.

In practice, differences in the way in which the various 'scientific communities' carry out research work in their respective fields posed important challenges. Such differences involved research agendas, interests and priorities, world views and political stances, methodological decision-making rules and very different – if not conflicting – forms of interpretation and analysis. In fact, disparate research cultures are constructed with clashing approaches to the same events and phenomena and, ultimately, to the same data.

The administration of the household survey was a particular case of the above-mentioned context. The questionnaire's construction, for example, was an interdisciplinary exercise par excellence, with participation and interaction between the teams. This joint effort, juggling between cost, time and the contents to be collected, created a unique moment for the team. This exercise enabled us to recognise different perspectives between the teams, the members of which were able to express their own research agendas and priorities, their understanding about what the relevant information and data were, and also the forms and levels of detail with which certain themes needed to be addressed.

Within this context, we identified that some subjects were very detailed but had lower analytical yield. Later we found that other matters should be explored better and be investigated with a greater level of detail. Some of these issues, common to many survey research processes, were only observed during the analytical process, with the data already collected.

This work process guaranteed the plurality and complementarity planned at the beginning of the project, in some cases also leading to difficulties in reconciling perspectives and maintaining a single narrative line (which can be considered positive) within the research's proposal. This also meant that the set of final products could give the project a more multidisciplinary than interdisciplinary character. Some of these issues will be briefly presented in the following sections.

17 The project was undertaken as a partnership between *Redes da Maré* and People's Palace Projects, which made viable connections between researchers from the United Kingdom (from Queen Mary University of London) and from Brazil – from Rio de Janeiro Federal University (UFRJ), from Rio Grande do Sul Federal University (UFRGS) and, later, from Rio de Janeiro State University (UERJ).

2.5.2. ESTIMATES, HYPOTHESIS TESTING AND THE USE OF SAMPLING WEIGHTS

Statistical data produced in sample surveys such as this household survey can essentially be used in two ways. There is a primary interest in estimation, which provides simpler and more descriptive statistics about the population (such as totals and means, percentages or ratios) called estimates and which are calculated from the sample data. This type of statistical inference, which translates numerical predictions from the sample to represent the entire population, requires the use of sample weights.

A sample corresponds to a subset of the population – that is, only a small portion of the population is consulted. So, it is possible to think in terms of a fraction between the sample size (n) and the population size (N), which expresses the proportion of people interviewed. For example, if we selected 1211 households to be interviewed from the register of 47,776 addresses in the 2013 Maré census, this sample fraction shows us that around 2.5% or one in every forty households were surveyed. One of the objectives of the sample weight is to function as an expansion factor, restoring the totals to the original population size, which, in this example, means that each household surveyed represents another forty households.

Furthermore, for reasons of sample design or operationalisation in the field work, there may ultimately be distortions between the composition of the sample, which should reflect certain characteristics of interest to the population, and the population composition. As seen, the sampling design of our survey stipulated the same sample size for all the strata even though they have different population sizes. With the same numeric value (n) for all strata and a much smaller denominator (N), it means that a household in Area 3, for example, is worth much more (has a much greater weight) than a household in the other strata. This disproportion needs to be corrected.

In the same vein, fieldwork in household surveys commonly generates a certain 'availability bias', associated with a greater or lesser probability of an individual being found at home. This causes the sample to have a different composition by sex and age than that expected in the population. For example, a proportionally greater number of women, young people and elderly people would be found at home to the detriment of the sample of men and people of working age. In this case, the necessary corrections aim to repair the over-representation of some sociodemographic groups and the under-representation of others. Sample weight calibration procedures[18] are used to correct these disproportions, adjusting the sample weights through correction factors by sex and age range.

In short, for exercises to estimate population values from the sample, for the whole of Maré or for the three areas or strata defined as estimation domains, the sample weights available in the database need to be used. It is noteworthy that these estimates are important in themselves, simply because information on certain population totals does not exist or is not available.

A second way of using the statistical data produced in this household survey in a more explanatory way is by using another type of statistical inference called hypothesis testing. This test allows the evaluation of the available statistical evidence to test different conjectures and analyse relationships between variables through their correlations and associations.

Hypothesis tests, also called statistical significance tests, are very sensitive to sample size. Larger samples have greater precision, with a lower standard error of estimates and a greater ability to detect differences and relationships that may be occurring in the population. In very large samples – and the larger the sample, the closer its size is to the population size – the standard error of the estimates is drastically reduced and any small variation detected can be considered statistically significant due to the increase in sample precision, even if it is a minor difference.

The use of sample weights with expansion factors emulates this effect of large samples, as it uses the estimated number of cases for the population (N) in standard error calculations instead of using the sample size (n), which corresponds to the number of observations or empirical evidence collected. Ultimately, biases are generated in the hypothesis tests, which start to find more statistically significant differences and associations than actually exist.

18 See Silva (2004) and the technical document describing the household survey sample plan.

To perform this type of analysis, two types of procedure can be adopted. The first refers to the use of so-called 'analytical weights' which disregard expansion factors and only use the correction factors for disproportions introduced by the complex sampling plan and by the availability bias generated from carrying out the research in the field. The second procedure requires incorporating information from this sampling plan design (on stratification, sampling units, weights and calibration totals) into the analysis.

The analytical weights can be obtained by multiplying the weight by the sample fraction (n/N), where n is the sample size (1211) and N, equal to 101,549, is the number of adults estimated for Maré's population in 2019. In addition, the database contains the necessary information on the design of the sampling plan to incorporate it into the analyses. However, using the sampling design brings more complexity to the analyses.

During data analysis, significance tests were performed and statistical models were adjusted to assess the effects of different factors on variables of interest, such as indices of well-being and mental health symptoms, indices of exposure to armed violence and of subjective feeling about violence. For these analyses, it was not advisable to use weights with an expansion factor in procedures that do not explicitly use the information from the sampling plan.

However, completely ignoring the sample weights and using the raw data as if the sample were self-weighted implied ignoring the second function of the weights, which is to correct the disproportions induced by the sample design itself and by biases in carrying out the research. As seen, there is an overrepresentation in the sample of cases in Area 3, which has a smaller population size and an availability bias that, for example, underrepresents men and overrepresents the elderly.

In statistical models estimated for analyses of mental health, as well as in econometric models for analyses of the relationships between violence and cultural consumption, the researchers chose to use unweighted data. The arguments were that in their fields of study, values such as simplicity, parsimony and transparency in relation to the data used took precedence over any additional statistical treatments or adjustments. Furthermore, it was argued that the use of weights in analyses of correlations and associations between variables should not theoretically and/or empirically interfere in the findings and final results of the models.

2.5.3. THE USE OF SYNTHETIC INDICATORS VERSUS SPECIFIC VARIABLES

As seen, the household survey has collected a large amount of data on dimensions and substantive themes, allowing the profile and living conditions of Maré's population to be observed from different perspectives. A series of theoretical constructs have been proposed and articulated in the development of the analyses, and has led to the calculation of composite indicators, which aggregate different types of information in a single synthetic measure. This has been the case for indices already validated and consolidated in national and international works, such as those calculated from BSI, MANSA and ASSIST, but also for indices specifically used for this project, such as measures of how residents of Maré's *favelas* are exposed to armed violence, fear and feelings of insecurity as well as indicators of cultural practices and consumption.

Synthetic indicators are widely used in several fields of study, such as epidemiology and collective health, social psychology and sociology. However, there were doubts regarding its use, mainly from the social sciences team. This was due to concerns that these composite indicators gather a vast set of content that could cause some conceptual confusion and hinder interpretation of the data. They also pointed to a certain risk of automatism and accentuated distancing, in the sense of a concern for a certain 'reification' of the indicator (also pointed out by Jannuzzi (2002)) in which the measure could become more important than the concept itself and the reality that it expresses. In this sense, there was a concern that the reports may become dehumanised by the excessive use of indicators.

Thus, some of the analysis developed by the research team extensively explores the synthetic indicators and indices created; others use them less, opting for detail. The latter prefers the use of simpler variables, keeping the analyses closer to the direct reports offered by the people interviewed.

2.5.4. POLITICAL AND ETHICAL ISSUES

The discussion about the use of synthetic indicators brings up another underlying and striking feature of the project's environment. Social indicators and statistics send political messages and allow for different appropriations and interpretations. They can be used to inform points of view, opinions and even political decisions, to define agendas and planning, or to help assess public initiatives, amongst other uses. The same can be applied to other results and findings from the research.

Furthermore, in developing them technically and methodologically, the design and calculation of indicators required a series of decisions and judgments to be made along the way. This must be taken into account to avoid arriving at wrong or overly simple conclusions.

This due care with interpretations and the consequences of communicating the results are especially relevant topics because the research touches on socially sensitive issues such as those related to patterns of drug use, narratives about mental health and public security's social and institutional contexts. There was a concern with all these topics about how to conduct the discussions and convey the research findings in an ethical manner without entrenching stereotypes, and with a concern for the political repercussions and their contributions to planning and implementing social services and public policies.

3. PROFILES OF MARÉ'S ADULT POPULATION

3.1. SOCIODEMOGRAPHIC PROFILE AND COMPOSITION OF POPULATION

The adult population of Maré was estimated to be 101,549 in 2019. It was estimated that women made up just over half of Maré's adult population (51.3%) while men accounted for 48.7%. In terms of age, the population was mostly made up of young people and young adults with 75.3% of the adults living in Maré being under fifty: 30.1% were between eighteen and twenty-nine years old and 45.2% were between thirty and forty-nine years old. The percentage of adults aged fifty to sixty-five was 17.5% and the elderly (over sixty-five) was only 7.2%.[19]Regarding the ethnoracial profile, it was predominantly made up of black people (those who identify as mixed race and black),[20] who accounted for 65.8% of the adult population in 2019. People who identify as white represented 32.2% of this population. The participation of people who identified as Asian was only 1.6%, while 0.4% of the adult population identified as indigenous.

19 As seen, the sample results were calibrated by sex and age, using the results of the 2013 Maré census as a measure. For these characteristics, therefore, comparisons between statistics from the two surveys are not appropriate, since the calibration adjusted the sample's percentages to those recorded in the Maré census. For other characteristics of the population, comparisons with the results of the Maré census will be carried out whenever these are available.

20 It is common in social and populational studies to label all people who identify as black or mixed race in the ethnoracial category as 'black'. For an analysis of racial breakdowns and biases in various topics, such as victimhood and exposure to armed violence, there are a lot of similarities in terms of economic, social and cultural conditions and opportunities between these two groups. The same goes for risks and vulnerabilities. Merging the categories is also justified by historical issues and political positioning. However, whenever there are analytically important distinctions between black and mixed race people, we will highlight these differences.

These estimates are different from statistics published in the 2013 Maré population census, which recorded a smaller black and mixed race population[21] (62.1%) and a larger white population (36.6%). The estimate for 2019, generated from the Building The Barricades project sample, was that the percentage of black people in Maré's adult population was 20%. In the 2013 census, conducted by *Redes da Maré*, the percentage was less than half of this estimate (9%). The estimated proportion of mixed race people in the adult population's racial composition was 45.8% in 2019, while the 2013 Maré census recorded 52.9%. There is, therefore, evidence of a change in the ethnoracial profile of the population over a period of six years.

It is not the remit of this text to exhaustively explore this longitudinal discrepancy between the two studies. However, it is worth briefly pointing out certain issues and listing some hypotheses. Around the time of the release of the 2010 demographic census results, there were indications of changes in Brazil's racial composition compared with the 2000 demographic census. The changes show a proportionate reduction in white people and an increase in the number of people who identify as black or mixed race. This phenomenon has been analysed both from the perspective of a substantive demographic change but also from a change in the mechanisms of self-declaration as a result of a heightened racial identity awareness and political positioning. In this sense, the results registered in Maré in 2019 could expect to see the acceleration of a broader Brazilian phenomenon – to be confirmed in the next national census.

Another methodological possibility lies in the reaction of the respondents to the presence of the interviewers, most of whom are black. It is a relatively common result, in the methodological literature on interviews or surveys using questionnaires, for response biases to be generated by respondents due to phenomena such as 'social desirability'. This is a type of cognitive bias in which the person interviewed tends to behave and respond based on predictions and attempts to read the researchers' or the interviewers' expectations in order to please them. It is a tendency to adjust to socially desirable values and to reject unpopular or morally undesirable attitudes, behaviours and opinions. In practice, based on mechanisms associated with social desirability, the people interviewed could be more attentive to issues of racial identity, feel more comfortable identifying themselves as black, or feel encouraged to do so.

A question for the discussions about ethnoracial political identities is one that asked, specifically for people who declared themselves as black or mixed race, whether they identified as a black person. We saw that 65.8% of the adult population of Maré is made up of people analytically defined as black (self-declared black or mixed race). Of these, 59.5% identify as black people, while 40.5% do not have this racial identification. People who do not identify as black are mostly those who self-declared they are mixed race, of which 57% deny any black identity whilst 43% claim to identify as a black person. Amongst the self-declared black people, this identification occurs in 96% of cases.

Identifying as a black person varies according to sociodemographic characteristics. For example, there are some indications that younger people (under 50) identify more as black as well as people with higher levels of education.[22] However, one of the factors most strongly associated with racial identification was the fact that the person was from the Northeast region of Brazil.

The publication of the Maré census (Redes de Maré, 2019), outlines two reasons why there is a higher proportion of mixed race people in the region. Firstly, this predominance is related to the higher frequency of interracial marriages, which would be more common in working class areas. Secondly, it is related to the strong presence of people of Northeastern origin in the population. Northeasterners account for more than a third of Maré's adult population (37.7%);[23] they are proportionally more mixed race and identify less as black. In fact, the chance of a person from the Northeast region of Brazil identifying as black is about 60% lower than that of people from other origins, even when controlling for the individual's level of education.[24] The survey estimated that a greater portion of the adult population

21 Data from the 2013 Maré census (Redes da Maré, 2019) refers to the whole population, not just adults.

22 Estimates hint at this relationship, but significance tests were not statistically significant. However, the sample size can reduce the test's power and ability to detect significant differences, rejecting the null hypothesis.

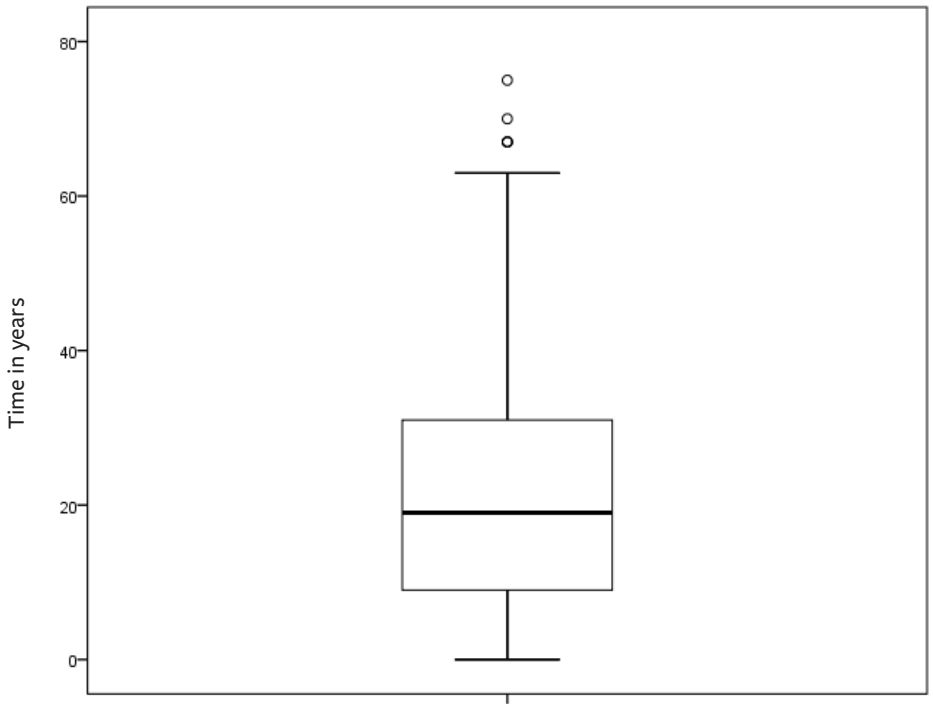
23 In the Maré census, the percentage of the population (not just adults) born in the Northeast region is 25.8%. This difference corresponds to generations of children and adolescents, children of migrants, who were born in Maré.

24 This association was statistically significant in chi-square tests and logistic regression models, controlling for the person's level of education.

residing in Maré had not lived there since birth. About 40% have lived in Maré since they were born (with or without any interruption) while 60% came from other locations.[25] Much of the population that was not born in Maré come from Rio de Janeiro state, which accounts for 29.8% of people. In addition, a large portion of this population have come from the Northeast of Brazil, which accounts for 63% of those who were not born in Maré. The main states of origin are Paraíba (with 24% of migrants) and Ceará (with 17.7% of migrants).

The average length of residence in Maré, for those who were not born in that territory, is twenty-one years. The analysis of quartiles and percentiles shows that one third of the 'migrant' population is recent, living in Maré for ten years or less. However, the median indicates that more than half of these people have lived in Maré for twenty years or more.

Diagram 1: Length of time people who were not born in Maré have lived in the territory



Source: Research data. Self-generated, 2021

3.2. SCHOOLING AND LITERACY

In Maré's resident adult population, aged eighteen or over, the literacy rate is estimated at approximately 93.7%. This means that there are just over 6400 people who cannot read, showing that the illiteracy rate of 6.3% has not changed since the 2013 Maré census (Redes da Maré, 2019), which recorded the illiteracy rate of people aged fifteen or over at 6%.

The unchanging illiteracy rate over the last six years responds to the fact that this is a phenomenon with strong generational conditioning. The rate is small for new generations, just 1.1% for people between eighteen and twenty-nine years old. For young adults aged thirty to forty-nine, the rate was 4.8%, rising to 8.8% in the fifty to sixty-five age group. It is in the elderly population, over sixty-five years of age, in which the literacy deficit is concentrated. In this age group, the illiteracy rate was 32.2%.

25 In the Maré census (Redes de Maré, 2019), the percentage of the total population (not just adults) who have lived in Maré since birth was higher (61.8%).

At eighteen, a young person is ideally expected to have reached their final year of secondary school, or have already completed this stage of education. In Maré, only 35.3% of the adult population had completed secondary school in 2019, and a large portion (40.6%) had not even finished primary school. The table below shows a comparison of the distribution of education levels for Maré's adult population, comparing these results with those in the 2013 Maré census (Redes da Maré, 2019).

Table 4: Educational stages reached by the adult population of Maré

BUILDING THE BARRICADES 2019	MARÉ CENSUS 2013
2.6% had completed their higher education at the very least.	1.4% had completed their higher education at the very least.
4.6% had started but not finished their higher education.	2.1% had started but not finished their higher education.
28.1% had completed secondary school without going on to university.	23.4% had completed secondary school without going on to university.
16.7% had started but not finished their secondary school education.	12.1% had started but not finished their secondary school education.
7.4% had completed primary education without going on to secondary school.	11.1% had completed primary education without going on to secondary school.
35.2% reached primary education stage but did not complete it.	43.8% reached primary education stage but did not complete it.
5.4% did not even start primary education.	4.9% did not even start primary education.
0.1% did not declare their schooling in the research.	1.3% did not declare their schooling in the research.

Source: Research data. Self-generated. 2021

Based on this comparison, we can see that, although education levels are relatively low, and there is still a lot of progress to be made in this direction, there has been an improvement in educational statistics over the last six years. Access and completion increased for higher education and secondary school, and the percentage of those who dropped out while still in primary school decreased.

Furthermore, a portion of this population were still studying at the time of the questionnaire. It is estimated that approximately 9% of the adult population of Maré was studying in 2019 – just over 9400 people. Of this total, more than half (56%) were in secondary school, 27.4% of students were doing university degrees and 7% were doing a master's degree.

3.3. OCCUPATION AND INCOME

It was not one of the objectives of the household survey to investigate in detail the socioeconomic conditions of Maré's population, nor to estimate, for example, employment and unemployment rates. Thus, both with regard to the population's occupation and the income, the measures and variables recorded only gave us inaccurate approximations of these conditions.

With regard to occupation, for example, the question asked the respondent about their situation in relation to employment. The answer options were: 'no employment', 'voluntary work' or 'regular work'. The latter category also included types of informal and freelance work, as well as 'odd jobs' and other sporadic informal services. Thus, it was not possible, for example, to discuss informality or work precariousness within the territory. It was also not possible to calculate the traditional rates of unemployment or job openings, as the questionnaire did not allow us to work with concepts such as an economically active population (EAP).[26] Since we did not check whether a person 'without employment' had taken any steps to return to economic activity, we cannot classify them as 'unemployed' but rather as 'not employed', which also includes people outside the labour market who have given up looking for a job, retirees and students.

For the year 2019, our survey registers that more than half of the population were employed (56.7%)[27] and 43.3% were not employed. Nine years earlier, the 2010 census indicated that these same percentages were, respectively, 61.8% and 38.2%, showing consistency between the results. The percentage of employed people is higher for men than for women, and also for people with higher levels of education, as the table below illustrates.

Table 5: Employment differentials in the adult population of Maré

EMPLOYMENT STATISTICS
66.4% men. 47.4% women.
48.8% of people aged 18 to 29. 68.9% of people aged 30 to 49. 51.6% of people aged 50 to 65. 25.2% of people aged over 65.
55.9% of people who identify as white. 59.2% of people who identify as mixed race. 52.2% of people who identify as black.
49.0% of people with no schooling or who did not complete primary education. 53.2% of people who completed primary education. 67.7% of people who completed their secondary school education and more.

Source: Research data. Self-generated, 2021

26 The category is defined in terms of a potential amount of labour, comprising employed persons (employees, employers, self-employed, informal and unpaid workers) and unemployed persons, who are those without work but who are willing to work, having taken some steps to get work.

27 The percentage of people who reported doing 'voluntary work' was negligible (0.7%) and was included together with 'regular work' in the 'employed' category.

About 70% of people have claimed to contribute to their household income. Almost all employed people stated that they contribute to this income (97%) and amongst non-employed people the percentage is around a third (33%). This last result can mostly be explained by people contributing by means of pensions and retirement income.

The percentage of contributors to household income is quite high amongst elderly people over sixty-five. In this group, 94.2% of people claimed to contribute to household income, although only 25.2% are still employed. Amongst people aged thirty to forty-nine, the share of income contributors is 75%; amongst people aged fifty to sixty-five, it is 79%. The lowest participation rate is registered in people aged eighteen to twenty-nine, with just over half claiming to contribute to their household income (51.4%). In the latter case, it may be down to a combination of a lower employment level with proportionately lower survey participation amongst employed young adults.

The questionnaire has also made it possible to assess the Maré adult population's satisfaction with their employment status. The results show that 24% of people are satisfied or very satisfied. This level of satisfaction is slightly higher for employed people (26.3%) compared with the non-employed population, for which the satisfaction percentage is 20.8%. Satisfaction levels are also higher when the person is able to contribute to the household income. In this case, 27.4% of people said they are satisfied or very satisfied compared with 17.1% of people who do not contribute to the household income.

These results are highly conditioned by people's ages. Younger adults, between eighteen and twenty-nine, are proportionally less satisfied with their working status (only 17% are satisfied), and this level of satisfaction depends on whether they are employed (21.4%) or not employed (12.6%). Older adults, aged between fifty and sixty-five, and elderly people, aged over sixty-five, are more satisfied (33% and 30%, respectively) and their level of satisfaction does not vary significantly according to whether they are employed or not.

The approximate monthly household income has been collected in non-exhaustive ranges, at intervals of 500 Brazilian reals (R$).[28] The answer options started with the category 'no household income', then 'R$500' and 'R$1000', up to the category 'more than R$5000'. These options were distributed into broader income brackets. Thus, about a quarter of Maré's adult population (25.9%) live in a household with an income equal to or less than R$1000 per month – 4.6% have no income, 3% have an income of R$500 per month and 18.3% have an approximate income of R$1000 per month. The average number of residents in this range is equal to three people per household, while the average number of residents with an income is 1.1 per household.

Nearly half of this population (49.6%) lives in a household with a monthly income of between R$1500 and R$2500 – 18.5% with an income of R$1500, 19% with an income of R$2000 and 12.1% with an income of approximately R$2500. The average number of residents per household in this income bracket is slightly higher, at 3.6 people per household, whilst 1.8 is the average number of people with income per household.

The percentage of the adult population with an income equal to or greater than R$3000 per month is 24.5% – 10.4% with an income equal to R$3000, 3.7% with an income of R$3500, 4.9% with an income of R$4000 and, at the upper limit, 5.5% have an income equal to or greater than R$4500. The average number of residents in this range is similar to the previous one, at 3.65 people per household, indicating a better per capita condition, and the average number of people contributing to the income is higher (2.4 taxpayers per household).

In an exercise similar to the one undertaken with employment rates, we have verified the levels of satisfaction of people in different household income ranges in relation to their financial situation. Overall, these levels of satisfaction are low, with only 14% of the adult population in Maré stating they are satisfied or very satisfied with their situation. As expected, satisfaction levels are higher in the upper income bracket of people in households with a monthly income of more than R$3000: nearly a fifth of people surveyed (19.3%) are satisfied with their financial situation. This satisfaction percentage is 14.6% for people in households with incomes between R$1500 and R$2000, and only 8.6% for people living in households with monthly incomes equal to or less than R$1000.

28 In 2019, at the time of the survey, the exchange rate for the Real was an average of 5 to the US dollar, and 7 to the British pound, meaning 500 Reais would be approximately 100 USD or 71 GBP. From 2019 to 2021 the economic situation has in Brazil worsened, and exchange rates are now higher.

3.4. SOCIABILITY NETWORKS AND CULTURAL HABITS: KNOWLEDGE, TRAVEL AND PRACTICES

ARTS AND CULTURE PLACES AND SPACES

As is the case with other themed sections of substantive interest,[29] which are dealt with in specific articles produced by the different research teams involved in the studies, the treatment given here to the data collected on cultural practices has an overarching perspective, showing more general data, and a few particular cross-sections.

Initially, the research was interested in observing the knowledge that Maré's adult population have about of arts and cultural venues and spaces – that is, places where activities and cultural practices could be carried out in Maré's territory. The vast majority of people surveyed (71.5% of the adult population) in Maré know at least one arts and cultural venue.

The people interviewed were also encouraged to cite some of the facilities they knew, also indicating if they had already visited these places and how often they did so. Of those who claimed to know such venues, 63% were able to cite more than one space. The most cited arts and cultural places were: the Museum of Maré (mentioned by 37.7% of people surveyed), the Maré Olympic Village (29.4%), the Cultural Marquee (20.8%) and the Maré Arts Centre (15.9%). *Redes da Maré* was also cited by 19.8% of people surveyed (without mentioning a specific project). In addition, a large number of 'other cultural places' were mentioned (by 61% of the people) such as Fight for Peace (7%) and the outdoor swimming area, *Piscinão de Ramos* (4.8%).

Knowing these arts and cultural venues, however, does not mean the people survey have attended them. In fact, looking at the answers about the number of visits made by people to the top three places mentioned, we observed that, in 74.8% of the answers,[30] the people interviewed had not visited the places indicated in the last three months, 7.3% of the places had been visited at least once a month in the last three months, 6.8% at least once a month, 6.5% at least once a week and 4.6% of the places had been visited daily. Thus, 11.1% of spaces had been visited weekly or daily. Map 1 below shows the location of some of these cultural spaces and the differences in terms of people's awareness of them and visits they receive every quarter.

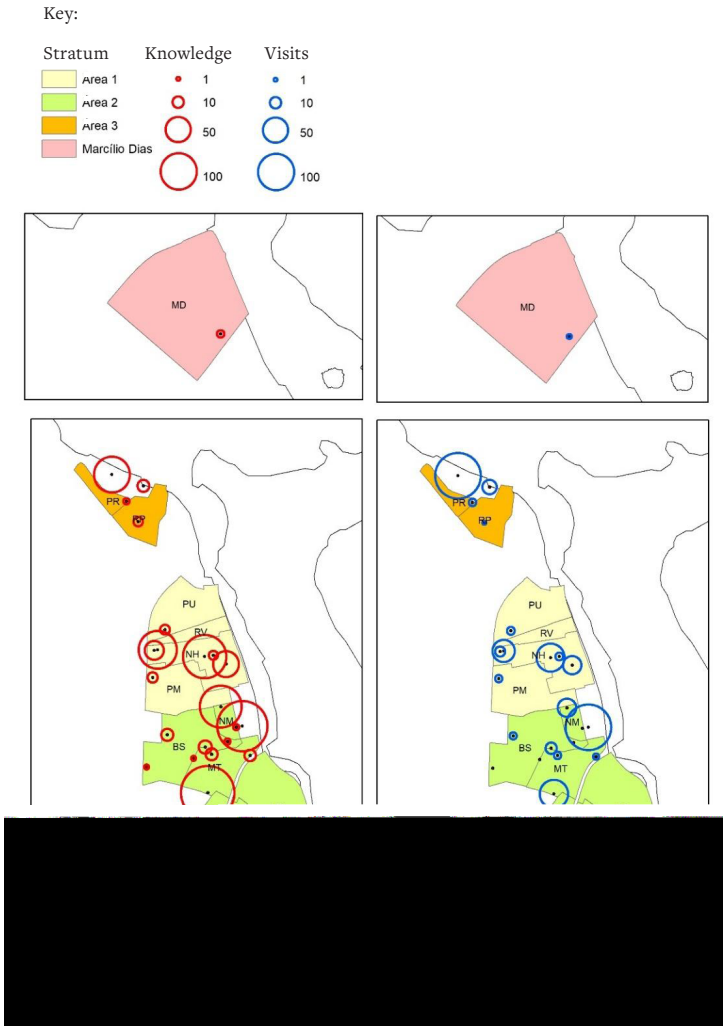
Another way to assess attendance at arts and cultural venues is to assess the share of the population in each of the visiting categories.[31] Here, the percentages are calculated not as a share of the total number of responses but for the estimated population. For example, it is estimated that 9% of the adult population in Maré visit one cultural venue daily and that 12.6% of this population visit such places at least once a week. In the lower participation ranges, 13.2% of people attend some of the cultural venues roughly once a month and 14.2% less than once a month.

29 Sections of special analytical interest, related to the project's specific objectives and with specialised teams to deal with the subject. In addition to the section on culture and leisure, the sections on health and mental health, on the patterns of legal and illegal drug use and on experiences of violence in the territory can be classified in this way.

30 This percentage refers to 1451 responses given by 1211 respondents, extended to Maré's adult population. Each person interviewed could spontaneously cite up to three places of art and culture, and then they would be asked how often they go to those places.

31 As it was possible to answer this question for up to three different places, these percentages do not add up to 100% and must be interpreted independently.

Map 1: Percentages of people's awareness of cultural venues in Maré and how frequently they attend them



Source: Maps: Redes da Maré. Georeferencing of institutions and data: Building The Barricades project.

DIGITAL INCLUSION

In terms of digital inclusion, it is estimated that 82.7% of Maré's adult population has access to the internet and has done so in the last three months. The overall quality of the internet has been classified as 'fair' by 40.9% of people surveyed, and for a similar proportion (39.5%) the overall quality of the internet is 'good'. Furthermore, 9.8% of the population rate their internet quality as 'poor' and 8.1% as 'awful'. At the other extreme, only 1.7% of the population classify their internet quality as 'excellent'.

The most frequent uses of the internet for leisure and culture are online videos and music. More than two thirds of people (61.2%) who had accessed the internet in the last three months watch videos daily and 66% listen to music daily. This percentage is much lower for online movies and series (32%) and for using the internet to read digital books (5.8%) or to visit museum websites, images of works of art or complete surveys (0.4%).

ARTISTIC PRACTICES

Table 6: Artistic activities practised in Maré in the last three months

ARTISTIC PRACTICE	PERCENTAGE	AT LEAST ONCE A MONTH	DAILY OR WEEKLY
Creative photography	34.1%	32.5%	27.9%
Creative writing	32.1%	30.8%	26.7%
Danced	26.9%	24.1%	15.7%
Sang or played an instrument	12.7%	11.9%	10.3%
Painted	5.0%	4.3%	3.2%
Acted or performed theatre	2.8%	2.2%	1.6%

Source: Research data. Self-generated, 2021

Considering the artistic activities described above, it is estimated that around 60% of Maré's adult population sporadically practise at least one of these activities. This percentage drops to 51% if we only consider people who often performs one of these activities at least once a week, but it still corresponds to a considerable portion of the population. It should also be noted that 24.2% of the adult population frequently practise two or more of these activities.

The activities cited most often are creative photography, dancing and creative writing. These high percentages, however, need further exploration in terms of how they are interpreted. While painting, acting or playing instruments are clearly associated with artistic activities, creative writing, dancing and creative photography can also be a more habitual pastime that would not necessarily be linked with a cultural practice.

CULTURAL OUTINGS VERSUS CULTURE AT HOME

The frequency of the practice of some artistic, cultural and leisure activities have been used to create a cultural participation index (CPI), which measures the level of access, engagement and cultural and artistic participation of Maré's population. This more general index can be broken down into two subindices, aiming to analyse different modalities of cultural participation.

The first of the subindices sought to represent a modality with more external activities (performed outside the person's home) involving the public or group interaction, and including engagement and sociability with people outside the interviewee's immediate social circle.

The second subindex sought to represent cultural, artistic and leisure practices that tend to be classed as internal activities, carried out in a person's home, introspective and carried out alone or as an individual. It also included digital and internet activities.

The two indicators have a positive and moderate correlation between them, with Pearson's correlation coefficient 'r' equal to 0.458. The positive correlation indicates that the indicators have grown together, and that people who have higher rates of participation in external activities also register relatively higher rates related to internal and domestic practices and habits. The fact that the correlation is not that high, however, points to a certain degree of differentiation, so that the joint analysis of the indicators can help to delineate profiles more suited to internal and external activities, people who practise both modalities and people who do not practise either of these. Ultimately, such indicators express not only modalities of practice and consumption of art, culture and leisure but also distinct types of sociability, lifestyles and spatial interaction with the territory.

Table 7: Components of the Cultural Participation Index (CPI)

EXTERNAL AND GROUP ACTIVITIES CULTURAL OUTINGS	SPORADIC PRACTICE	INTERNAL AND INDIVIDUAL ACTIVITIES DIGITAL AND HOME CULTURE	SPORADIC PRACTICE
Watched films at the cinema	28.7%	Films/series on the internet	53.3% * (64.7%)
Watched a play at the theatre	5.1%	Films/series via other means	52.8%
Went to see live music	34.6%	Watched videos on the internet	66.8% (80.9%)
Went to a museum	9.3%	Watched television	94.2%
Went dancing	26.9%	Listened to music on the internet	69.5% (84.2%)
Acted or performed theatre	2.8%	Listened to music via other means	50.6%
Sang or played an instrument	12.7%	Read a digital book	12.9% (15.7%)
		Read a printed book	33.8%
		Visited a museum website	6.5% (7.9%)
		Practised creative writing	32.1%
		Painted	5.0%
		Practised creative photography	34.1%

* Percentage of the total population (Percentage of the total population that accessed the internet in the last three months)

Source: Research data. Self-generated 2021

The two indicators that were created, based on sporadic participation[32] in the modalities described above, vary between 0 and 1. External cultural participation is less popular: the index average is 0.17 and its distribution is concentrated in smaller values. About 40% of the population have an external cultural participation index equal to zero. The average of the internal cultural participation index is higher (0.45) and most people have indicators distributed around this average.

Observing both indices together, it is possible to establish three cultural participation groups.[33] The first and biggest group have low overall cultural participation, with small averages for both indicators. The second is characterised by low external participation and high internal participation. And the third group have both high external and internal participation. The levels of internal participation are very similar in the last two groups; what distinguishes them is their degree of external participation.

32 It only defines if someone has practised an activity in the last three months or not.

33 Other groups were created using a statistical method for detecting clusters (K-means).

Table 8: Cultural Participation Profiles

GROUP	%	IPC_{EXT} AVERAGE	IPC_{INT} AVERAGE
Low general participation in culture	48.4%	0.05	0.31
High internal participation	37.1%	0.19	0.57
High external participation	14.6%	0.50	0.58

Source: Research data. Self-generated, 2021

Cultural participation is more intense amongst young adults, aged eighteen to twenty-nine, both in terms of external and internal participation. While 24.9% of young people are in the group with high external participation, this percentage in the next age group (thirty to forty-nine years old) is 13.1%. The percentages are even lower in older age groups.

In the same way, while 50.8% of people aged eighteen to twenty-nine are in the group with high internal cultural participation, this percentage drops to 36.7% in the thirty to forty-nine age group and falls to 23.7% in the fifty to sixty-five age group. Only 14.6% of the elderly, aged sixty-five years and older, are in this group.

In contrast, 82.4% of the elderly are in the group that comprises the portion of the population with low levels of artistic and cultural participation. This percentage is 71% for people aged fifty to sixty-five years old and 50.1% for people aged thirty to forty-nine years old, being drastically lower amongst younger people (24.3%).

There are no significant differences in cultural participation profiles between areas (1, 2 and 3), nor between men and women. Also, no differences have been found between employed and non-employed people, especially when we observe these results together with the age group. The latter case shows, therefore, that non-employed people do not, on average, have proportionally greater cultural participation than employed people even though, in theory, they have more time available.

The results also show that people who were born in Maré have higher levels of internal and external cultural participation: 19.9% of this category of people fall into the high external participation group and 43.6% in the high internal participation group. Amongst the category of people who were born outside Maré, these percentages are lower: 11% and 32.7%, respectively.

3.5. PRACTICE OF SPORTS AND PHYSICAL ACTIVITIES

The survey estimates that almost half of Maré's adult population (46.2%) is in the habit of practising some type of sport or physical activity. Amongst practitioners, 56.7% report performing such activities daily and another 31% at least once a week. The most practised physical activities were walking (indicated by 28.4% of those surveyed), soccer (23.6%), gymnastics and/or weight training (18.7%) and, less frequently, running (6.8%), martial arts (4.1%), dance (3.4%) and cycling (3.2%). In addition to these, about twenty other activities are listed.

The practice of physical activities is proportionally higher amongst men than amongst women: 57.1% and 35.9%, respectively. It is also more frequent amongst young adults between eighteen and twenty-nine years old (57%) than in other age groups, although just over a third of elderly people, sixty-five years old and over, practise some type of physical activity (32.3%). In the intermediate age groups, 43.8% of people aged thirty to forty-nine years and 39.5% of people aged fifty to sixty-five years practise physical activities.

It is also worth noting that the practice of sports is proportionally higher amongst people who were born in Maré (51.2%) compared with people who have moved there from other places (42.8%). Another interesting point is that this practice does not vary territorially between the areas of Maré used as strata in the research, nor are the differences between employed and non-employed people significant.

3.6. RELIGION AND RELIGIOUS PRACTICE

In the adult population of Maré, 71% of people claim to practise a religion. However, of that figure, 21.1% have not recently attended a religious venue and for 12% their religious practice is less than once a month. In addition, 15.5% of those who claimed to practise a religion attend places of worship at least once a month, 35.3% attend weekly and 16% daily. Therefore, just over 50% of the people who practise religion are regular visitors, going to religious venues at least once a week.

Women practise religion more than men (77.1% compared with 64.8%). Results also show that older people – aged fifty to sixty-five and aged sixty-five and over – are more actively religious, with respective percentages of 81.1% and 84.2%. For younger people – aged eighteen to twenty-nine years old and thirty to forty-nine years old – practising religion percentages are 57.5% and 74. 2%, respectively.

3.7. CONDITIONS OF PHYSICAL AND MENTAL HEALTH

With regard to the population's health conditions, the survey has allowed us to estimate that 36.9% of Maré's adult population have suffered from physical health problems in last three months prior to the questionnaire. Although most reported only one problem (66.8%), 24.8% of people declared two problems and 8.4% suffered from three physical health problems or more.34The main health problems listed are high blood pressure (29.9%) and osteoarticular diseases, such as pain in the legs and spine (23%). A little less frequent are diseases such as diabetes (13.3%) and infectious diseases (10.4%). Most people who have health problems have sought treatment (84.4%).

Results for mental health conditions amongst the adult population are lower, at 19.5%. Of these people, 86.2% have reported one mental health problem and 12.4% have reported two. Only 1.4% of people who have a mental health problem cited three or more issues.

The main mental health conditions cited are depression (26%), conditions related to general anxiety (25.5%) and symptoms related to emotional states such as anguish, anger and worry (21.8%). Less frequent are symptoms related to stress (10.2%), grief (7.5%) and non-organic insomnia (6.4%). Regarding mental health, a smaller percentage of people than those with physical health conditions have sought some type of treatment or support (39.1%).

Observing subjective health conditions, we found that 19.2% are satisfied or very satisfied with their physical health. With regard to mental health, this percentage is 22.8%. As expected, satisfaction levels are significantly lower for people who have health problems. Satisfaction with physical health for people who had a problem in the three months prior to the survey is 13.4% compared with 22.6% for people who cited no problems. Satisfaction with mental health drops to 12.2% for those who have an existing issue in this field, compared with 25.4% for people who claim to have no health problems.

We can also cross-reference the information on physical and mental illness with the general symptoms index (GSI/BSI), a measure of psychological status and emotional distress, which uses the week prior to the interview as a temporal reference. The average GSI for Maré's adult population is approximately equal to 0.6. This measure is 38% higher for people who have a physical health problem (0.73) compared with people who do not have such a problem (0.52). The variations in the GSI are even greater when observed in relation to people who have had a mental health problem in the three months prior to being interviewed. In this case, the GSI average (1.08) is a little more than double the one recorded for people who have not reported this type of issue (0.48).

34 The survey only took into consideration up to three health issues.

3.8. PATTERNS OF LEGAL AND ILLEGAL DRUG USE

With regard to the consumption of psychoactive substances, it is estimated that 17% of Maré's adult population have never used any substance in their lives, even legal ones such as alcohol and tobacco. These latter two are the most tried substances – 78.8% of adults have consumed alcohol at least once in their lives and 36.7% of the adult population have tried tobacco or derivatives. Marijuana has been consumed by 13.8% of people and cocaine by 4.1% of Maré's adult population. The percentage of people who have taken other drugs such as crack (0.6%) and amphetamines or ecstasy (1%) is negligible.

The average number of substances tried is 1.67. In the portion of the adult population that have tried at least one substance, 53.8% have tried a single substance and 32.6% have tried two. In short, 86.4% of the adult population in Maré who claim to have consumed some type of psychoactive substance at least once in their lives have taken one or two substances. Amongst those who have consumed only one substance, alcoholic beverages (90.9%) are predominant, followed by tobacco (6.6%) and marijuana (1%). Amongst people who have consumed two substances, alcoholic beverages are present in 99.4% of cases, followed by tobacco (in 87% of cases) and marijuana (12.4%). In this group, the frequent combinations are alcohol/tobacco (86.4%) and alcohol/marijuana (11.7%).

As seen in the adult population of Maré, 17% of people have never tried any psychoactive substance in their lives. Furthermore, 29.1% of this population have not used any substance in the three months prior to the survey. The percentage of people who have used substances in a relatively recent period is 53.9%, and 64.9% of people who have tried psychoactive substances have done so in the three months prior to being interviewed.

Using the period of one quarter as a reference, it is possible to estimate that 49% of the population of Maré have consumed alcohol at least once in the three months prior to the survey. The consumption of tobacco derivatives is much lower (14.5%), as well as marijuana (5%) and cocaine (0.3%). Further, 27.1% of Maré's adult population use alcohol frequently (weekly or daily); the percentage is 11.8% for tobacco derivatives and 4.1% for marijuana consumption.

There is a difference in the frequency of use of different psychoactive substances. Amongst people who use tobacco products in the last three months, 81% use it frequently. This percentage is lower (55%) in relation to the consumption of alcoholic beverages and to marijuana (28%). However, the term 'frequent' may have been interpreted differently because it came with no set definition in the survey. For example, while the use of tobacco products is mostly daily (89% of frequent use is daily and 11% weekly), as is the case with marijuana (60% daily and 40% weekly), the use of alcohol is proportionally more weekly (15% daily and 85% weekly).

Table 9: The experience and recent use of psychoactive substances

SUBSTANCE	PROPORTION OF MARÉ'S ADULT POPULATION THAT...		
	TRIED (...) AT SOME TIME IN LIFE	USED (...) IN THE LAST 3 MONTHS	USED (...) FREQUENTLY* IN THE LAST 3 MONTHS
Tobacco derivatives	36.7%	14.5%	11.8%
Alcoholic drinks	78.8%	49.0%	27.1%
Marijuana	13.8%	5.0%	4.1%
Cocaine	4.1%	0.3%	0.3%
Crack	0.6%	0.08%	0.08%
Amphetamines or ecstasy	1.0%	0.16%	0.0%
Inhalants	1.1%	0.08%	0.0%
Hypnotics/sedatives	0.3%	0.0%	0.0%
Hallucinogens	1.0%	0.04%	0.0%
Opioids	0.1%	0.00%	0.0%
Other substance	0.2%	0.05%	0.05%

* Frequently = weekly or daily.

The section on patterns of use of legal and illegal psychoactive substances has adopted an investigation protocol to detect the use of and involvement in alcohol, tobacco and other psychoactive substances called ASSIST[35] (SENAD, 2014).

ASSIST makes it possible to calculate involvement indices or scores that can be calculated according to each substance studied. It is a measure that gathers information on frequency of use, patterns of abstinence and desire to consume as well as the social consequences of substance abuse.

Table 10: Composition of ASSIST

ASSIST QUESTIONS	CATEGORIES (WEIGHT OF CATEGORIES)
Frequency:	
of use of the substance	Never (0), Once or twice (2), Monthly (3) Weekly (4), Daily (6)
of having a strong desire or urge to consume	Never (0), Once or twice (2), Monthly (3) Weekly (4), Daily (6)
of consuming the substance leading to a health, social, legal or financial problem	Never (0), Once or twice (4), Monthly (5) Weekly (6), Daily (7)
of not doing things that were normally expected of you because of your use	Never (0), Once or twice (5), Monthly (6) Weekly (7), Daily (8)
Have friends, relatives or other people demonstrated concern about your use of the substance?	No, never (0) Yes, in the last three months (6) Yes but not in the last three months (3)
Have you ever tried to control, reduce or stop your use of the substance but have not succeeded?	

Source: Research data. Self-generated, 2021

Later, the results of these scores were classified into 'involvement levels' ranges, indicating groups of people with more abusive patterns of use (more recurrent and with potential social and health risks and harm).

Table 11: Levels of involvement with psychoactive substances

SUBSTANCE	MEDIUM LEVEL OF INVOLVEMENT		HIGH LEVEL OF INVOLVEMENT	
	IN THE POPULATION	AMONGST RECENT USERS	IN THE POPULATION	AMONGST RECENT USERS
Tobacco derivatives	14.5%	38.4%	2.2%	6.0%
Alcoholic drinks	12.7%	16.1%	1.0%	1.3%
Marijuana	5.9%	42.6%	0.5%	3.7%
Cocaine	1.6%	39.2%	0.05%	1.3%
Crack	0.3%	49.6%	0.08%	13.3%

Source: Research data. Self-generated. 2021

35 Alcohol, Smoking and Substance Involvement Screening Test (ASSIST).

3.9. SUBJECTIVE LEVELS OF SATISFACTION AND WELL-BEING IN MARÉ

In the research, the levels of subjective well-being and quality of life for Maré's adult population have been captured from questions that explore people's satisfaction with certain areas or domains of daily life. These questions are part of an instrument called MANSA[36] and classify the degree of satisfaction according to the following scale: 1 – very dissatisfied; 2 – dissatisfied; 3 – somewhat dissatisfied; 4 – neither satisfied nor dissatisfied; 5 – somewhat satisfied; 6 – satisfied; 7 – very satisfied.

For most questions, the answers were concentrated in the middle of the scale – in the category 'more satisfied than not'. This is the answer that emerges most frequently for most domains, with percentages ranging between 33% and 49%. Exceptions are satisfaction with their financial situation and in relation to security. In the first case, 26.7% of people responded that they are 'neither satisfied nor dissatisfied', while 25% are 'more satisfied than not'. Regarding satisfaction with security, the percentages of people 'neither satisfied nor dissatisfied' and 'more than satisfied' are approximately the same (22%).

Table 12: Levels of dissatisfaction and satisfaction in the population of Maré

SATISFACTION IN RELATION TO	VERY DISSATISFIED OR DISSATISFIED	VERY SATISFIED OR SATISFIED	SATISFIED/ DISSATISFIED RATIO
Life as a whole	11.9%	24.3%	2.0
Work/main daily activity	14.6%	23.9%	1.6
Financial situation	19.3%	14.0%	0.7
Number and quality of friendships	11.8%	20.9%	1.8
Leisure activities	12.2%	20.0%	1.6
Housing	10.3%	24.9%	2.4
Security	21.6%	14.4%	0.7
Living alone	8.6%	25.6%	3.0
Living with whom I live	5.9%	41.5%	7.0
Sex life	9.5%	27.0%	2.8
Relationship with family	8.4%	39.2%	4.7
Physical health	11.9%	19.2%	1.6
Mental/emotional health	10.5%	22.8%	2.2

Source: Research data. Self-generated, 2021

Another way to observe the levels of satisfaction and dissatisfaction in the population is to analyse the two extremes of the scale, comparing the percentages of 'satisfied' or 'very satisfied' people with those who are 'dissatisfied' or 'very dissatisfied' with a certain area of their lives. In a consultation, for example, regarding satisfaction with life as a whole, 24.3% of the adult population in Maré said they are 'satisfied' or 'very satisfied', while a smaller portion of this population (11.9%) are 'dissatisfied' or 'very dissatisfied'. The percentage of satisfaction is approximately twice the percentage of dissatisfaction.

36 Manchester Short Assessment of Quality of Life (MANSA).

In general, the percentages of satisfaction are higher than those of dissatisfaction, with ratios of around twice as high. For some dimensions, this ratio is higher, indicating even higher levels of satisfaction. The percentage of satisfaction in 'the people with whom I live' category is about seven times greater than dissatisfaction. This ratio is 4.7 times higher in the 'satisfaction with family relationships' category. On the other hand, the levels of dissatisfaction are higher than those of satisfaction in relation to perceptions about finances and security – the levels of satisfaction are around 30% lower.

4. BUILDING THE BARRICADES: POSSIBLE NARRATIVES AND RELATIONSHIPS WITH VARIABLES

After the first two attempts at contextualisation in this technical and methodological essay and descriptive overview of the population residing in Maré, I intend to close this text with a brief overview of analyses that express: (a) some substantive results and comments; (b) the analytical capabilities of this dataset, which have not been exhausted or exhaustively treated; and (c) insights capable of inspiring new and future analysis.

Such analyses are the result of work which is still in progress to identify constructs and theoretical variables of interest, to map out the conceptually expected relationships between these constructs, and to ascertain analytical rearrangements aimed at composing new possible narratives. This work was developed with the teams in a constant interdisciplinary dialogue with results from the work meetings and workshops recorded.

Furthermore, such analyses can be seen as the result of a sociological effort to understand Maré's reality, its social dynamics and the contexts of armed violence in terms of a structure of relationships between theoretical variables which are operationally interpreted. It is a question of establishing what associations exist and how strongly related certain phenomena are.

Any analytical effort always involves arbitrary decisions about what will and will not be communicated. In this sense, many discussions and reflections that were carried out will not be present here but should be addressed in future opportunities.

4.1. INFERENCES ABOUT PROFILES OF MOVEMENT AROUND MARÉ

The first sample survey[37] on physical movement around Maré, carried out in 2014 by *Redes de Desenvolvimento da Maré*, in partnership with the Observatory of Favelas and the Centre for Excellence and Innovation in the Automotive Industry (CEIIA), is a study that has sought to collect data on the characteristics of the movements of Maré's residents on a daily basis, both internally within the territory of Maré and externally outside the neighbourhood. Carried out with residents aged sixteen or over, the survey also raises perceptions and opinions about the movement and travelling carried out by this population (Silva, Silva and Marinho, 2015).

In this study, the term mobility is used more specifically, emphasising profiles and conditions of local movement in both Maré's territory and Rio de Janeiro. The survey estimates that, on average, residents exit Maré about three-and-a-half days a week. Estimations show that 61% of the population travel outside the boundaries of Maré three days a week or more, while 22.5% rarely travel beyond the territory, or do so less than once a week. If, on the one hand, it is revealed that a considerable portion of the population frequently travel outside Maré, on the other hand, it is shown that this movement is more restricted to the immediate surroundings of the Maré territory. In fact, around a quarter of the people

37 The sample is non-probabilistic in terms of quotas for residence, sex and age.

interviewed cite the Ramos neighbourhood as their most frequent location, and almost half frequent neighbourhoods in the suburbs of Leopoldina, in the north of the city – both areas in the immediate vicinity of Maré.

In addition, some sociodemographic groups have a social life more restricted to the community itself. Men journey out more than women, about one day more on average – 69.5% of men exit Maré more than three days a week compared with 53% of women. Similarly, older people access the rest of the city less than the younger adult population. The average frequency of travel outside Maré for a person aged sixty-five and over is 1.4 days a week. While about 16.5% of people aged sixteen to forty-four almost never leave Maré or only less than once a week, this percentage is almost double for people between forty-five and sixty-five years old (31%) and more than three times higher for people aged sixty-five and over (61.7%).

With regard to internal movement in Maré's communities, around 75% of the population claim they travel to other locations within Maré. Men do so a little more than women (77% compared with 73%, respectively) and the levels of internal movement gradually decrease according to the person's age group. Between ages sixteen and twenty-four, this percentage of movement is 83%, dropping to 76% in the twenty-five to forty-four age group, and falling to 70% and 49% in the case of people aged between forty-five and sixty-five and those aged sixty-five and over, respectively.

The main and most important reason for people travelling outside Maré is work – 50% of the general population have given this reason. The second most important reason is shopping or access to services (38.4%), followed by leisure (30%), access to health services (21%), going out to meet friends (18.2%) and to study (12%). Regarding the motivations for internal movement, with travel to other communities in Maré, the main reason is meeting friends (58.2%), followed by access to services and shopping (42.6%) and, only then, work (17.5%). Other statistically relevant reasons for internal movement are visiting family members (15%), leisure (13.5%), practising sports or physical activities (13%) and religion (12.7%), which are occasionally cited as reasons for travelling outside Maré. About 10% of people travel within Maré to access health services and only 5% to take courses or to study.

For 82% of the population of Maré, there are obstacles or difficulties for moving around in the territory. There is virtually no difference between the gender and age categories in this regard. Although the main obstacles are related to urbanisation, roads and public maintenance (40.4%), such as paving, waste collection, flooding, unfinished works or basic sanitation problems, a considerable portion of the population pointed out problems with movement related to violence and public security – shootings, the ostensible presence of weapons and tension with the presence of the army, amongst other reasons. Security is mentioned by 31% of the population (Silva, Silva and Marinho, 2015).

The present household survey does not necessarily focus on the theme of mobility and travel. However, we believe that this can be a promising construct for thinking about exposure to armed violence in the community. In addition, there are elements in the questionnaire that could be used to capture this dimension in a broader sense in order to understand 'forms of insertion, movement and belonging to social, cultural and consumer networks' (Silva, Silva and Marinho, 2015, p.108), even if it is limited to what occurs locally in the territory of Maré.

In this sense, several of the issues investigated – about cultural and sporting activities and practices, religious adherence, access to health networks and services – can be (re)organised to consider internal movement and travel profiles. In fact, in the previous mentioned research (2014) they appear to be amongst the reasons for going out. Thus, a set of questions were included to generate a measure of the movement of the resident population within Maré in 2019.

Table 13: Categories used to measure the levels of internal movement in Maré

ASSIST QUESTIONS	CATEGORIES (WEIGHT OF CATEGORY)
Employed people.	Being employed had a weight of 4.
Students.	Studying had a weight of 4.
Frequency of visiting cultural, arts or leisure spaces.	For each of these questions the weight varies according to the frequency: 4. Daily or almost daily 3. At least once a week 2. At least once a month 1. Less than once a month 0. Never
Frequency of doing artistic, cultural or leisure activities outside the home.	
Frequency of doing a physical activity.	
Frequency of doing a religious activity.	
Participation or help to organise events.	Each participation had a weight of 2.
Look for assistance for physical or mental health problems.	Each time of looking for health services had a weight of 2.
Visit or be visited by friends in the last week.	Visiting or being visited had a weight of 2.

Source: Research data. Self-generated, 2021

The calculated movement index ranges between 0 and 1.94 and has an average of 0.65. The index also shows statistically significant differences according to sex and age, place of origin, occupation and also whether the person is studying. In short, if the person is employed they have higher levels of movement – 41% higher than non-employed people (0.75 compared with 0.53). Similarly, studying also produces higher levels of movement – 53% higher (0.88 compared with 0.58). In addition, the youngest section of the adult population (aged eighteen to twenty-nine) have movement rates higher than other age groups: 45% higher than the movement levels registered for the population aged over sixty-five (0.74 compared with 0.50). Other variables such as sex and place of origin have smaller but significant differences. Men have movement patterns 8% higher than those of women (0.68 compared with 0.63) and people born in Maré have a movement rate 12% higher than those from other places of origin (0.70 compared with 0.63).

As expected, experiences of exposure to violence also vary significantly according to levels of movement. To carry out this analysis, three ranges were created that distinguished between people with low, medium and high levels of movement.

Table 14: Exposure to violence according to levels of movement around Maré

VARIABLES OF EXPOSURE TO ARMED VIOLENCE	LEVELS OR MOVEMENT IN MARÉ			HIGH/LOW RATIO
	LOW	MIDDLE	HIGH	
Was caught in the middle of a shooting.	37%	42%	53%	1.42
Saw someone being assaulted.	18%	23%	30%	1.63
Saw someone being shot or killed.	14%	17%	20%	1.47
Someone close was killed.	20%	25%	31%	1.52
Often frightened to move around Maré.	13%	12%	10%	0.73
Number of times was caught in a shooting.	2.69	3.07	3.26	1.21
Index of exposure to armed violence.	0.59	0.71	1.00	1.70
Subjective violence index.	1.85	1.79	1.78	0.96

Source: Research data. Self-generated, 2021

The percentage of people who have been caught in the middle of a shooting gradually increases along with movement levels. In the lowest range, 37% of people have been caught in the middle of a shooting in the last year, whilst in the range that represents the highest levels of movement this percentage is 53%. Repeated exposure to shootings is also greater. Higher levels of movement are also associated with a greater number of times a person witnessed a shooting. Other experiences of exposure to armed violence, such as witnessing assaults or beatings, seeing someone being shot, or having a close friend murdered are also significantly higher for people with higher levels of movement. This pattern can be summarised by the exposure to armed violence index (EAVI), which is also systematically higher as the level of movement increased. The EAVI is 70% higher in the high movement range than in the lower range.

Patterns of movement do not seem to affect fear and the feelings of insecurity. Although the average subjective violence index (SVI) is slightly lower in the range with lower movement rates, these differences are not statistically significant. Furthermore, it was interesting to note that, even for a variable directly linked to movement (the fear of moving around Maré), the differences between the different levels of internal movement in the territory are not significant.

4.2. EXPOSURE TO ARMED VIOLENCE AND THE FEELING OF INSECURITY

The 'armed violence' construct has been developed based on a set of social and community experiences related to armed criminal group actions and practices, which these groups carry out in order to uphold their territorial control, and which in turn allow them to pursue their illegal activities. Additionally, and no less important, this conceptual construct includes state and institutional actions in its definition. This looks at whether there are systematic omissions and actions guided by a repressive, military model of public security and policing of marginalised territories, or more autonomous and smaller scale actions by public security operators – that is, the violent, disrespectful and even illegal ways in which certain police officers act in these territories. The exposure of people residing in these controlled territories to the events and dynamics of this armed violence, as well as the consequences and social impacts of this exposure, constitute one of the objects of special interest in the research.

A very detailed descriptive overview, with estimates of exposure to armed violence and its effects in Maré, can be seen in an article by the social sciences research team.[38] In this text, a number of detailed results and analyses will be presented regarding: (a) the role of police interventions and their impacts; and (b) the effects of armed violence on some health and mental health variables.

4.2.1. POLICE AND POLICE ACTIONS

One of the limitations of the questionnaire used to collect survey data is the impossibility of accurately identifying what, in the records about armed violence, is due to the actions of armed criminal groups and what is the effect of police actions in the territories. Questions about extortion, witnessing assaults and house raids, for example, in addition to variables related to experiences of shootings could have registered which actors were involved, but they did not.

Given this limitation, we have used three variables on barriers to accessing health services and facilities and social practices in Maré in order to consider police actions. These variables resulted from open questions that asked which situations the restrictions occurred in once an access barrier specifically related to armed violence was recorded. We had already anticipated, however, that police interventions may play a more important role in the dynamics and consequences of armed violence in Maré (and in the city of Rio de Janeiro) than is possible to show here.

About a third of the adult population in Maré (30.5%) stopped practising any leisure, artistic, cultural, sporting or religious activity in the three months before the survey specifically because of the armed violence in Maré.

38 Article entitled 'Social impacts of exposure to armed violence on Maré: incidences, consequences and coping strategies' available in Portuguese only.

Taking into account the adult population that suffer this restriction, 68.4% of people report having stopped practising these activities because of police operations; 30.2% of people talk about shootings without specifying their origin, and only 6.6% specifically indicate conflicts between criminal factions. Other situations were reported, such as fear and rumours of an operation or the movement of armed people, but these responses are residual (1% or less of the cases).[39]

Such impediments and restrictions on access to services, with the possibility of identifying the role and weight of police interventions, can also be checked in questions about access to health services. It is estimated that just over 8800 people – 8.7% of Maré's adult population and 24% of the population who had a physical health problem in the three months before the survey – had some problem accessing a health service, solely on account of the armed violence in Maré. Amongst these people, 65.7% stated the situation that caused this restriction was a police operation; 32.2% highlighted shootings (without specifying the context) and 2.1% highlighted two situations of conflicts between drug traffickers/shootings and police operations.

The number of people who reported having a mental health problem is about half the number of people who reported physical health problems. In addition, while 84% of people with physical health problems sought treatment, the percentage for those with mental health problems is much lower (39%). Thus, the number of people who are prevented from accessing mental health services and care due to armed violence is around 130040 – which corresponds to 1.3% of Maré's adult population and 6.5% of the population that reported a mental health problem in the three months prior to the survey. In this group, 64% stated that it is the police operations that cause the barrier to access, while 35.7% highlighted shootings.

Given the regularly in previous results, it is possible to ascertain that a considerable portion of barriers to access encountered by Maré's population is because of armed violence, and that residents' interruptions to daily stability and life routines are probably also caused by police activity. In the three variables observed, the percentage of people who pointed out police invasions is always above 60%. This number may even be underestimated since some of the non-specific records of shootings may contain situations involving police.

This tallies with a number of qualitative reports from both qualitative interviews and focus groups as well as from the questionnaire itself – when stories were collected by interviewers in response to open questions. In practice, police actions are more frightening and destabilising than the actions of armed criminal groups – from the point of view of Maré's residents. Below are some of the reports collected by interviewers:

> *'Only afraid to go out when there is a police operation. In January left a pan on the stove and inhaled a lot of smoke. At the beginning of the year, during an operation, the helicopter was flying so low that it broke all the dishes on the shelves.'*

> *'The respondent reported that, in almost all operations, the police raid the building, however, they don't enter her house when they see her child. She considers entering the building to be an invasion of her home, from the way she answered the question. She reported that in the last operation (31/07), the police broke the lock on the gate that gives access to the building. Regarding verbal violence, she reported that it was perpetrated by the police.'*

> *'Respondent said that in the last operation the police forced young people to break their smart phones because they thought they were recording their actions.'*

> *'In Morro do Timbau, when the police arrived on the day of the operation, they used the respondent's room to shoot from.'*

39 Since people could give more than one answer, these percentages do not add up to 100%.

40 With such a small sample size, the estimates have a large margin of error and should be used with caution.

4.2.2. EFFECTS OF ARMED VIOLENCE ON PHYSICAL AND MENTAL HEALTH CONDITIONS

In a study conducted by the psychiatry research team,[41] the association between mental health, fear and armed violence has been considered, based on the GSI/BSI, as a synthesised measure that registers different symptoms experienced by people in the week prior to the interview. However, the questionnaire had two other questions (that asked about physical and mental health conditions) that could be used to reflect on the effects of violence (and fear of armed violence) on health conditions.

Although both questions deal with people's perceptions of their health conditions, there is a distinction between what has been declared (or self-declared) and thus more subjective, and what could be described with some level of objectivity. In the first case, two questions asked whether the person considered if their (physical and mental) health had already been harmed specifically due to violence in Maré. In the second case, two other questions registered more objectively whether people, in the three months prior to being interviewed, had physical or mental health problems. The following analyses aim to verify the effects of violence and fear on these variables.

As seen, 37% of Maré's population has suffered from a number of physical health problems in the three months before the survey. This percentage is lower for mental health problems, at 19.5%. When dealing specifically with the perceived impacts of violence in Maré on health, this pattern is inverted so that 19.8% of the population believe that their physical health is affected by violence and 31.2% believe that this context has already caused some damage to their mental or emotional health.

There is clearly a relationship between these variables of perception and the occurrence of problems, in the sense that people who had reported health problems perceive the impact of violence more than those who had reported no health problems. While 28.3% of people who had physical health problems identify that violence had an impact on their physical health, this percentage drops to 14.8% for people who reported no problems. The same relationship occurs in relation to mental health. The percentage of those who perceived an impact on mental health is 48.9% for those who reported an emotional or mental health problem in the three months before the survey, but the percentage is considerably lower, at 26.8%, for those who did not report this type of problem.

Logistic regression models were adjusted, taking these four questions as response variables, and the indices of the EAVI and the SVI as explanatory variables. We opted for a simpler model, with controls only for sex and age.

Table 15: Estimated odds ratios

EXPLANATORY VARIABLES	RESPONSE VARIABLES			
	ILLNESS		PERCEPTION OF IMPACT OF VIOLENCE ON HEALTH	
	PHYSICAL	MENTAL	PHYSICAL	MENTAL
Age	1.05	0.99	1.00	1.01
Sex: women	1.70	2.43	1.54	1.47
Exposure to armed violence index (EAVI)	1.32	1.10	1.53	1.53
Exposure to subjective violence index (SVI)	1.05	1.17	1.88	1.86

N.B. Significance Level = 0.05 (95% confidence). Ratios in bold were not significant

Source: Research data. Self-generated, 2021

41 Article entitled 'Violence, mental health and quality of life amongst adults living in Maré's favelas', available in Portuguese only.

Ratios greater than 1.0 indicate a positive, directly proportional association between the variables while an odds ratio of less than one indicates a negative association with an inversely proportional relation. In relation to gender, for example, all the reasons are positive, indicating that women generally have a higher risk of falling ill than men and also more readily associate the issue of security Maré with their health condition.

For age, the results are less stable. Regarding illness, older age groups are associated with greater odds of becoming physically ill. However, an opposite relationship is found for mental illness, for which older people record, on average, lower odds of mental illness. Regarding perceptions of the impact of violence on health, age is not relevant as a differentiation criterion with regard to the perception of impact on physical health, but it is significant in relation to the perception of impact on mental health, showing that older age groups are related to the increased perception of the impact of violence on mental and emotional health.

With regard to the EAVI and the SVI, the odds ratios are all greater than one, indicating positive associations. However, physical illness, fear and the feeling of insecurity, as per the SVI, has no significant relevance; whilst, for mental and emotional illness, it is the objective experiences that are not relevant.

In short, greater exposure to experiences of armed violence is associated with an increase in the odds of becoming physically ill and in the perception of the impact on physical and mental health. In the first case, each increment of one unit in the EAVI (ranging from 0 to 6) represents a 32% increase in the chances of having a physical health problem. In the second, the perception of the impact, each increment of one unit in the EAVI represents an increase of approximately 53% in the odds of a person believing that armed violence affects or has already affected their physical or mental health.

In addition, higher levels of fear of violence and a feeling of insecurity seem to be associated with increased chances of mental illness, and also with greater odds of believing that violence has an impact on physical and mental health. Each increment of one unit in the SVI (ranging from 0 to 4) represents a 17% increase in the odds of a person acquiring a mental or emotional health problem. Likewise, each increase of one unit in the EAVI also represents an 88% increase in the chances of a person believing that armed violence in Maré affects their physical health, and an 86% increase in the odds of believing it has an effect on their mental health.

These results corroborate the analyses carried out using the GSI/BSI, and bring new elements for us to reflect upon: the consequences of armed violence on the health of Maré's population and of other *favelas* and marginalised territories in Rio de Janeiro, as well as other urban centres with similar public security situations.

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