Health Status and Lifestyle of the Mentally and Physically Disabled

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Abstract:

Purpose: The aim of the article is to identify differences and similarities in the lifestyles of people with physical and mental disabilities and to determine the degree and direction of interdependence between lifestyle and self-assessed health status of people with disabilities.

Design/Methodology/Approach: We obtained data using the F2F questionnaire technique, using the own survey. We used statistical methods based on analysis of the differentiation and similarity of structures and tests likelihood ratio, chi-square and asymmetric lambda coefficients to study interdependencies between variables. After identifying the variables that influence the likelihood of a positive self-assessment of health, we use logistic regression.

Findings: The results obtained indicate the information about how disabled people spend their free time, whether they play a sport, and their views on the opportunity to get a job at high position helps predict the health status of a disabled person.

Practical implications: The health condition of disabled people doesn’t depend on the type of disability. Factors that determine their health condition concern sports, work, and the form of spending free time. That the type of disability has a statistically significant impact on factors related to education, work, and cultural and social activity. It is easier to predict the state of health of a disabled person based on these factors than the reverse.

Originality/Value: Lifestyle is important for self-assessment of health. The general lifestyle questionnaire proposed by Lopez-Fontana et al. (2020) should be complemented with attitude toward work, way of spending leisure time, interpersonal relationship.

Keywords: Health status, lifestyle, mental disability, physical disability, logistic regression.

JEL classification: C25, H12.

Paper Type: Research study.

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1. Introduction

Lifestyle determines the quality of life, which decides on the degree of satisfaction of important needs for a man and means psychological well-being (WHOQOL, 1994). At the same time lifestyle is considered one of the key factors affecting health. A healthy lifestyle appears as a benchmark and a recommendation to improve health and quality of life. Lalonde (2002) identified factors that affect health and concluded that an improvement of access to health care had no impact on health and that such changes would not improve health if patients did not adopt a healthy lifestyle. Dahlgren and Whitehead (2007) postulated that factors affecting health (mental and physical) and lifestyle are related.

The aim of this article is to identify differences and similarities in the lifestyles of people with physical and mental dysfunctions. In addition, the article attempts to determine the degree and direction of interdependence between lifestyle and self-assessed health status of people with disabilities.

Physical and mental well-being is of key importance for people with disabilities, including their ability to perform routine activities (Abu-Shakra et al., 1999). Lifestyles of people with dysfunctions are unhealthy, and they increase the risk of adverse health effects in people with disabilities (Kivimäki et al., 2015). Unhealthy lifestyle increases health care expenses (WHO, 2011). But few publications show mechanisms involved in disabled’s people lives, due to the unhealthy lifestyle (Zhou et al., 2019). On the other hand, in the literature much is devoted to measure the quality of life of people with disabilities from the point of view of the health discomfort perceived. For this type of research, validated questionnaires called specific questionnaire are used. They are focused on the disease entity, Health Related Quality of Life – HRQOL, (Vasudevan et al., 2015; Ferrans and Powers, 1992; Bowling et al., 2013; Herdman et al., 1998). WHO clarified the concept of quality of life by indicating that it is an individual way of perceiving by an individual their life position in a specific value system, in relation to standards set by the environment (Shields et al., 2012).

Therefore, research on quality of life should identify physical, social and psychological conditions that affect the individual assessment of quality of life (and not only health). First of all, WHO questionnaires allow measuring the quality of life of people with dysfunctions in static and passive terms, but the results obtained only allow assessing how the disease affects the quality of life. Secondly, even though according to the World Health Organization (WHO) 60% of factors related to individual health (mental and physical) and quality of life correlate with lifestyle, according to the authors, HRQOL questionnaires are not a sufficient tool for this type of measurement, in particular in relation to comparative studies devoted to the quality of life and lifestyle of people with diverse dysfunctions. Among other things, based on the research conducted on the basis of the questionnaire indicated, it is
impossible to answer the research question whether dysfunctions (health problems) determine lifestyle and affect self-assessment of health.

In response to the lack of a comprehensive and validated assessment of lifestyle adapted to the research settings, Lopez-Fontana et al. (2020) proposed a new tool designed to assess the general lifestyle - the general lifestyle questionnaire (GLQ). The GLQ simultaneously measures cognitive, physical, social, and other leisure activities, as well as sleep, diet, and substance use as alcohol or tobacco. As a result of statistical analysis carried out in this contribution the authors suggest to complement GLQ by including questions regarding other aspects of lifestyle: working conditions, way of spending free time and interpersonal relations.

In this article the authors apply the results of surveys conducted on the basis of the questionnaire which was designed to assess the quality of life of people with disabilities and identify their needs and problems. It was created based on areas of life indicated in exploratory (qualitative) research by respondents with visual, physical and mental dysfunction.

At work we use the concept of lifestyle in disability (Mitra et al., 2017; Sharma and Maimdar, 2009; Ventegodt and Merrick, 2003). We have assumed that lifestyle is a complex process that refers to a social group - people with a similar degree and type of disability. The lifestyle of the group indicated includes socially shaped patterns of behavior that the group adopted and uses to cope with life (Anderson et al., 2020). The individual's lifestyle consists of individual choices related to the attitude to work, study, physical activity and rest (Vasudevan et al., 2015). Therefore, the selected questions in the questionnaire, on the basis of which the research was conducted in the article, include the issues of lifestyle determining the social activity of people with learning disabilities, work, living conditions, physical activity, and opportunities to function in the environment.

The paper is organized as follows. In Section 2 we describe the statistical methods used to analyze structure differentiation and similarity and to study interdependencies between variables. Section 3 presents the characteristics of a group of respondents. In addition, we identify variables related to the state of health and the lifestyle of people with disabilities for further analysis. Next we examine whether the type of dysfunction can affect a lifestyle and we analyze the relationship between features characterizing certain spheres of life and the health status of people with disabilities. We conclude in last section.

2. Research Methodology

Our primary research method was the F2F questionnaire technique, which was carried out in between April and July 2017. The foundation called I Do Not See the Problem and the University of Wroclaw prepared and implemented the survey. They conducted 187 questionnaires, of which 172 included answers to all questions. Of
the total, 119 were completed by people with mental disorders and 68 by physically disabled people.

The questionnaire consisted of 80 questions divided into topics of health assessment, health care, school and workplace adjustment for people with disabilities, functioning at home and public spaces, sports and recreation, personal and family life, economic conditions, and interaction with the environment. The study was designed to assess the quality of life of people with disabilities and identify their needs and problems, not to examine their lifestyle. Therefore, not all aspects of lifestyle were taken into account in the study, and this article should be seen as a pilot study.

Eleven (out of 80) questions were selected based on which the variables subject to the study were determined. The designations of all variables examined in the article, together with the corresponding questionnaire and answer codes, are listed in Appendix 1.

To answer the question of whether and how the lifestyle of people with disabilities influences their subjective evaluation of their health, we used statistical methods designed to analyze the diversity and similarity of structures. To assess whether the answers to individual questions depend on the type of disability of the respondent, we use the similarity index of structures – The Bray-Curtis coefficient (Somerfield, 2008). The value of the coefficient is in the range [0,1]. The value is closer to unity, the similarity of the structures of compared the subpopulations is higher. A value of 0 indicates a lack of similarity subpopulations.

To indicate significant variables describing the effects of the previously described elements of lifestyle on the health of disabled people, we tested the hypotheses concerning the independence of two variables, \(X\) and \(Y\), using the likelihood-ratio test, Pearson \(\chi^2\) or \(\chi^2\) Pearson with the Yates correction (Agresti, 2002). The choice of test statistic depends on the number expected in the breakdown table and the size of the sample. After identifying the variables that influence the assessment of health in order to answer the question of how the identified variables affect the likelihood of a positive health assessment, we used logistic regression and odds ratio.

To assess the degree of dependence between features, we used asymmetric Goodman Kruskal lambda coefficients, which have the advantage over classical independence measures based on chi-square statistics that they give the direction of dependence for the examined traits (Ostasiewicz, 2011; Goodman and Kruskal, 1979). In addition, they determine the magnitude of the error by which the prediction of one trait is reduced when the category of the second trait is known.
3. Results and Discussion

The designations of all variables examined in the article are included in a Table in Appendix 1, which (in the last three columns of the Table) gives the percentage structure of responses provided by all respondents and for persons with physical and mental dysfunction separately. Health condition is not solely related to illness or disability. According to the WHO, health is a state of complete physical, mental, and social well-being. Therefore, one of the first questions in the survey concerned the health condition of the respondent. Of the respondents, 53% rated their health as very good or excellent and less than 46% as bad or very bad (X1).

According to the definition adopted in sociological research, lifestyle is the totality of features characteristic of the behavior of an individual or a group that manifest especially in everyday life (in attitudes toward work, leisure activities, interpersonal relations, etc.). In the further part of this paper the group of respondents will be characterized due to attitudes in the above-mentioned areas characterizing the lifestyle.

Education is one of the determinants of the type of work performed. Note that among the disabled the most numerous group are people with secondary education, and the least numerous is people with primary and some secondary education (the level of education is represented by variable X11). The respondents were asked whether they had had difficulty getting their education (X2). About 43% of respondents declared that they had had no difficulty, and 31% had had to overcome some difficulties. A further 26% of the respondents did not want to answer the question or had no opinion. In addition, the respondents were asked for their opinions on professional promotion (X3). Of disabled people, 36% believed that people with disabilities do not have a chance to work in a high position and 32% had the opposite opinion. The remaining respondents were not able to give a definite answer.

The way people spend their free time depends on preferences and abilities. They can spend their free time in an active (e.g., walking, hiking, gardening, sports) or passive (e.g., reading books, cinema, theater, museum visit) way. Among respondents, 22% preferred an active form of spending their free time, 27% preferred passive, 37% liked both, and the other respondents did not have any opinion (X5). Less than 10% of respondents often or very often made use of cultural facilities such as cinemas, theaters, or museums, and 38% did not make use of them at all. The remaining respondents attended cultural facilities in Wroclaw sporadically or from time to time (X4). Only 23% of respondents declared that they play sports (X6).

In addition to ways of spending free time, integration with the environment and interpersonal relationships are an essential element of a lifestyle. The examined group of disabled people was not integrated with other disabled people: 48% did not meet with other disabled people, 29% did so sporadically or from time to time, and
only 23% had regular or frequent contact with other disabled people (X7). Similarly, in assessing social integration between groups of non-disabled people and people with disabilities, 39% of respondents thought the environments were integrated while 47% said they did not observe such a phenomenon and the remaining people did not have an opinion (X8).

Lifestyle is one of the main factors differentiating society and differentiating social groups from each other. Therefore, the first step in the analysis was to investigate whether type of dysfunction can be a lifestyle. For this purpose, we examined indexes of the similarity of response structures in groups of people with motor and mental dysfunction. The Bray-Curtis coefficients for individual variables and are presented in Figure 1. Note that people with mental and physical dysfunctions perceive their health (X1) in the same way, with 94% they are compatible. The pattern bars indicate the similarity of structures for those features that characterize particular areas of the lifestyle (checked indicates attitude to work; spotted, way of spending free time; striped, relationships between people).

**Figure 1: Indexes of similarity of response structures to questions provided by mentally and physically disabled people**

![Figure 1: Indexes of similarity of response structures to questions provided by mentally and physically disabled people](image)

*Source: Authors’ own elaboration.*

All the similarity coefficients of the structures presented in Figure 1 are relatively high, which indicates that the variables that determine the preferred lifestyle of communities of mentally and physically disabled people do not lead to much difference between the communities. However, the differences between the communities are observable when the structure-adjustment factor is not greater than 80%. The observations are also confirmed by the results of the independence test between variables $X_i^m$ and $X_i^p$ and defined separately for the subpopulations of respondents with disabilities, both mental and physical. In the cases of X2, X3, X4, X7, and X11 the test rejected the hypothesis of no dependence, and in each case the significance level was less than 0.02 (Table 1).
### Table 1. Dependence of individual variables on type of disability

| Variable                                      | Test statistic | p-value | No dependence between $X_i^m$ and $X_i^p$ |
|-----------------------------------------------|----------------|---------|------------------------------------------|
| $X_1$ – health                                | 0.44           | 0.51    | +                                        |
| $X_2$ – difficulties with getting an education| 8.85           | 0.01    | -                                        |
| $X_3$ – a chance to work at a high position   | 10.43          | 0.005   | -                                        |
| $X_4$ – the use of cultural facilities        | 12.38          | 0.002   | -                                        |
| $X_5$ – a form of leisure                     | 3.53           | 0.32    | +                                        |
| $X_6$ – sport                                 | 0.54           | 0.46    | +                                        |
| $X_7$ – meetings with disabled people         | 8.04           | 0.02    | -                                        |
| $X_8$ – social integration                    | 1.63           | 0.44    | +                                        |
| $X_9$ – age                                   | 10.78          | 0.06    | +                                        |
| $X_{10}$ – sex                                | 2.86           | 0.09    | +                                        |
| $X_{11}$ – education                          | 11.83          | 0.008   | -                                        |

**Source:** Authors’ own elaboration.

By analyzing the empirical distributions of the responses given, we can see that people with a mobility disability are more optimistic about acquiring an education and finding a job at a high position. This is probably because 78% of those people have secondary or higher education, while in the group of people with mental disabilities this percentage is 53%. In addition, people with physical disabilities are more likely than mentally disabled people to leave the home to meet other disabled people and more likely to make use of cultural institutions.

As we found that self-perception of health does not depend on type of disability (see Table 1; for the X1 variable the p-value is 0.51), in the subsequent stages of analysis we did not take into account the type of dysfunction. In the second stage, to identify whether the specific areas of life attitude to work, interpersonal relations, and how people spend their free time determine the perceived health condition, we analyzed the relationships between the characteristics of individual spheres of life and the health condition of disabled people. The results are presented in Table 2.

Lack of interdependence of the variables examined with a health variable means that the variables $X_2$, $X_4$, $X_7$, and $X_8$ do not affect the assessment of one’s own health. The grouping of variables adopted shows that the sphere of interpersonal relations is not the most important for the health of disabled people. What is important is the way they spend their free time and their attitude toward work, although not all variables studied in these spheres of life are significant. Because the analysis showed that the health condition of disabled people depends on the form of spending free
time, playing sports, and the chance to get a job at a high position, the strength of the relationship and the dependency direction were calculated only for these variables. We present the values of the calculated measures in Table 3.

**Table 2. Interdependence between health \((X_1)\) and other variables**

| Sphere of life                  | Variable                              | The value of the test statistic | p-value | No dependence on variable health \((X_1)\) |
|---------------------------------|---------------------------------------|---------------------------------|---------|-------------------------------------------|
| attitude toward work            | \(X_2\) – difficulties with getting an education | 2.16                            | 0.34    | +                                         |
|                                 | \(X_3\) – a chance to work at a high position   | 5.86                            | 0.05    | -                                         |
| way of spending leisure time    | \(X_4\) – the use of cultural facilities    | 1.83                            | 0.40    | +                                         |
|                                 | \(X_5\) – a form of leisure               | 20.48                           | 0.00    | -                                         |
|                                 | \(X_6\) – sport                           | 14.28                           | 0.00    | -                                         |
| interpersonal relationship      | \(X_7\) – meetings with disabled people   | 5.04                            | 0.08    | +                                         |
|                                 | \(X_8\) – social integration              | 1.86                            | 0.39    | +                                         |

**Source:** Authors’ own elaboration.

**Table 3. Values of asymmetrical coefficients \(\lambda\)**

| Variable                                      | Coefficients |
|-----------------------------------------------|--------------|
| \(X_1\) – health                              | \(\lambda_{X_1} = 0.12\) | \(\lambda_{X_3} = 0.05\) |
| \(X_3\) – a chance to work at a high position | \(\lambda_{X_1} = 0.25\) | \(\lambda_{X_5} = 0.06\) |
| \(X_1\) – health                              | \(\lambda_{X_1} = 0.18\) | \(\lambda_{X_6} = 0.01\) |

**Source:** Authors’ own elaboration.

The results show that we can better predict the health condition of a disabled person based on their manner of spending free time, sports activity, or opinion about the opportunity to get a job at a high position than when we predict lifestyle based on health status. This means that the features \(X_3\), \(X_5\), and \(X_6\) determine the health status of people with disabilities.

To determine exactly how the identified variables affect the likelihood of a positive self-assessment of health, we used the logit model, which took the following form:
logit\left( p_i \right) = 0.59 + 0.15 \cdot X_{3-W1} - 0.43 \cdot X_{3-W2} + 0.67 \cdot X_{5-W1} - 0.64 \cdot X_{5-W2} + 0.5 \cdot X_6.

Using the odds ratio and the adjusted logit model, we compared the chance of a very good feeling of health despite the disability due to the variables included in the model. The quotient of the likelihood of a positive assessment of health condition by people spending their free time actively in comparison with people spending it passively is as follows: \( \psi_{X_3(1)/X_3(-1)} = 3.7 \). This means that spending time actively increases the chances of a positive self-assessment almost four times in comparison with spending free time passively. The quotient concerning positive assessment of health condition by people playing sports regularly in comparison with people who do not is as follows: \( \psi_{X_6(1)/X_6(-1)} = 2.7 \). Therefore, playing sports regularly increases the likelihood of positive self-assessment almost three times. The smallest contributor to positive assessment of health is the opinion that people with disabilities have a chance to work at higher positions (odds ratio for this variable is 1.3).

4. Conclusion

We can draw the following conclusions from our static analysis of whether health condition affects the lifestyle of physically and mentally disabled people:

- The type of disability does not affect whether a disabled person plays any sport or what kind of leisure activity he or she prefers (active or passive).
- The type of disability does have a statistically significant impact on the following:
  - education;
  - difficulties in acquiring education;
  - chance to get a job at a high position;
  - use of cultural facilities;
  - attending meetings organized for people with disabilities.

As for factors influencing the health condition of the disabled, their health condition does not depend on the type of disability. The factors that do matter are the form of leisure time, playing sports, and the chance to get a job at a high position. The most important contributor to positive self-assessment of health is engaging in active leisure activities and playing sports regularly. Information about how disabled people spend their free time, whether they play a sport, and their views on the opportunity to get a job at a high position helps predict the health status of a disabled person.

In conclusion, the health of disabled people does not determine their lifestyle, but lifestyle is important for the self-assessment of health. Due to the received results of statistical analysis it is recommended to extend the general lifestyle questionnaire...
proposed by Lopez-Fontana et al. (2020) by questions regarding attitude toward work, way of spending leisure time, interpersonal relationship.

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Appendix 1: Description and designation of variables

| No. | Question                                                                 | Variable                  | Values | Answers                                      | Total        | Physical dysfunction | Mental dysfunction |
|-----|--------------------------------------------------------------------------|---------------------------|--------|----------------------------------------------|--------------|----------------------|-------------------|
| 2   | Generally, your health is ...                                            | $X_1$ – health            | 1      | Bad or very bad                              | 45.99        | 17.65                | 28.34             |
|     |                                                                          |                           | -1     | Very good or perfect                         | 52.41        | 17.65                | 34.76             |
| 13  | Have you had any difficulties getting an education?                      | $X_2$ – difficulties with getting an education | 1      | Definitely yes or rather yes                 | 30.98        | 7.61                 | 23.37             |
|     |                                                                          |                           | -1     | Probably not or definitely not              | 42.93        | 20.65                | 22.28             |
|     |                                                                          |                           | 0      | I do not want to disclose or it's hard to say | 26.09        | 8.15                 | 17.93             |
| 16  | Do you think that people with dysfunction have a chance to gain high positions in Poland? | $X_3$ – a chance to work at a high position | 1      | Definitely yes or rather, yes               | 31.52        | 16.30                | 15.22             |
|     |                                                                          |                           | -1     | Probably not or definitely not              | 36.41        | 8.70                 | 27.72             |
|     |                                                                          |                           | 0      | It's hard to say                             | 32.07        | 11.41                | 20.65             |
| 54  | How often do you use cultural facilities (cinemas, museums, theaters) in Wroclaw? | $X_4$ – the use of cultural facilities | 1      | Often or very often                         | 9.55         | 5.06                 | 4.49              |
|     |                                                                          |                           | 0      | Occasionally or from time to time           | 52.81        | 24.16                | 28.65             |
|     |                                                                          |                           | -1     | Never                                       | 37.64        | 7.87                 | 29.78             |
| 58  | What form of spending free time/rest suits you the most?                 | $X_5$ – a form of leisure | 1      | Active (physical)                           | 21.59        | 8.52                 | 13.07             |
|     |                                                                          |                           | -1     | Passive (intellectual)                      | 26.70        | 9.09                 | 17.61             |
|     |                                                                          |                           | 2      | Both                                        | 36.93        | 16.48                | 20.45             |
|     |                                                                          |                           | 0      | I have no opinion                           | 14.77        | 3.41                 | 11.36             |
| 59  | Do you practice any sport?                                               | $X_6$ – sport             | 1      | Yes                                         | 22.99        | 10.29                | 14.29             |
|     |                                                                          |                           | -1     | No                                          | 70.59        | 26.86                | 48.57             |
| 64  | How often do you attend meetings for people with dysfunctions?          | $X_7$ – meetings with disabled people | 1      | Often or very ofte                          | 22.73        | 9.09                 | 13.64             |
|     |                                                                          |                           | 0      | Occasionally or from time to time           | 28.98        | 14.77                | 14.20             |
|     |                                                                          |                           | -1     | Never                                       | 48.30        | 13.07                | 35.23             |
| 25  | Is there social integration between groups of non-disabled people with    | $X_8$ – social integration | 1      | Definitely yes or rather yes                | 38.80        | 19.13                | 27.32             |
|     |                                                                          |                           | -1     | Probably not or definitely not              | 46.99        | 12.02                | 26.78             |
| No. | Question          | Variable | Values       | Answers   | Total |
|-----|-------------------|----------|--------------|-----------|-------|
|     | Physical dysfunction | Mental dysfunction |
| 74  | Age \( X_9 \)-age | 0        | I have no opinion | 14.21 | 5.46   | 9.29  |
|     |                   | 1        | Up to 30 years old | 62.36 | 21.91  | 40.45 |
|     |                   | -1       | 31 years or older | 37.64 | 14.61  | 23.03 |
| 75  | Sex \( X_{10} \)-sex | 1        | Woman        | 51.41 | 15.82  | 35.59 |
|     |                   | -1       | Man          | 48.59 | 20.90  | 27.68 |
| 81  | Education \( X_{11} \)-education | 4        | Primary education or high junior school education | 12.30 | 1.60   | 10.70 |
|     |                   | 3        | Vocational education | 18.72 | 3.74   | 14.97 |
|     |                   | 2        | Secondary education | 33.16 | 13.90  | 19.25 |
|     |                   | 1        | Higher education | 28.88 | 14.44  | 14.44 |

**Note:** The sixth column of the Table contains the percentage share of respondents who provided specific answers to the questions asked. Within each of the questions, the sum of the percentage shares of all responses is not equal to 100%, which results from the fact that some questionnaires lacked answers to individual questions.

**Source:** Authors’ own elaboration.