# How to install and use SF-36 registration program for Windows 10 and Office 365

Table 1 Document History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Version | By | What has been changed | Why |
| 2015.April.13 | 1.0.0 | Veronika Lindberg | SF-36 registration program was developed. | The program was used to calculate SF-36 scores for my master thesis in applied statistics. |
| 2019.August.27 | 2.0.0 | Veronika Lindberg | New normative data for SF-36 for Norway from 2017 was included after personal communication with Andrew Malcolm Garratt at the Norwegian Institute of  Public Health, NIPH (Folkehelseinstituttet, FHI). | The program should be used for new collection of data. |
| 2019.September.11 | 3.0.0 | Veronika Lindberg | Changed the way summary scores are calculated. | Takes into account that Physical and Mental health is correlated. |
| 2022.January.27 | 4.0.0 | Veronika Lindberg | Added support for saving the file to OneDrive path. | Needed to upgrade the program to run on Windows 10 and Office 365. |
| 2022.February.01 | 4.0.1 | Veronika Lindberg | Use local path if OneDrive path is not found. Removed some project specific items. | The program should run offline on a patient’s computer as well. |
| 2022.February.09 | 4.0.2 | Veronika Lindberg | Allow unknown age and unknown gender.  Tested to run on both 32-bit and 64-bit version of Excel. | For backward compatibility. |

Contents

[How to install and use SF-36 registration program for Windows 10 and Office 365 1](#_Toc95389355)

[Chapter 1: Excel settings for OFFICE 365 2](#_Toc95389356)

[1.1 Choose file path for the SF-36 registration program 2](#_Toc95389357)

[1.2 Make Developer tab visible 2](#_Toc95389358)

[1.3 Allow macros to run 2](#_Toc95389359)

[1.4 Visual Basic References 3](#_Toc95389360)

[1.5 Possible conflict between 32-bit and 64-bit versions of Excel 5](#_Toc95389361)

[Chapter 2: Visual Basic settings 5](#_Toc95389362)

[2.1 Check version of the Visual Basic Modules 5](#_Toc95389363)

[2.2 Check if normative data is correct included and hidden 6](#_Toc95389364)

[2.3 Other hidden Excel sheets 7](#_Toc95389365)

[2.4 Visible Excel sheets 7](#_Toc95389366)

[Chapter 3: Run the SF-36 registration program 8](#_Toc95389367)

[3.1 Start the SF-36 macro 8](#_Toc95389368)

[3.2 Add a new person 8](#_Toc95389369)

[3.3 Remove a person 8](#_Toc95389370)

[3.4 Take the first survey 8](#_Toc95389371)

[3.5 Take the next survey 9](#_Toc95389372)

[3.6 Delete a survey 9](#_Toc95389373)

[3.7 View results of the SF-36 survey 9](#_Toc95389374)

[3.8 View Health Problems 11](#_Toc95389375)

### Excel settings for OFFICE 365

#### Choose file path for the SF-36 registration program

1. Save the Excel file to a local path or a OneDrive path. The path should be writeable and not read only.

#### Make Developer tab visible

1. Open the Excel file.
2. On the **File** tab, go to **Options**> **Customize Ribbon**.
3. Under **Customize the Ribbon** and under **Main Tabs**, tick the **Developer** check box to make the Developer tab visible.

#### Allow macros to run

1. On the **Developer** tab, in the **Code** group, click **Macro Security**.
2. In the **Macro Settings** category, under **Macro Settings** tick **Enable VBA macros** to allow macros to run**.**
3. Under **Developer macro settings**, tick **Trust access to the VBA project object module.**

Graphical user interface, text, application, email

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#### Visual Basic References

1. On the **Developer** tab, in the **Code** group, click **Visual Basic**.
2. In the **Visual Basic for Applications** window, go to **Tools** > **References** and verify that the objects listed below are installed.
3. 32-bit version:

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1. 64-bit version:

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#### Possible conflict between 32-bit and 64-bit versions of Excel

Sometimes there becomes a conflict between 32-bit and 64-bit versions of Excel during manual or automatic upgrade of the system.

1. Make sure that Location in the References list is pointing to the path where the files are actually stored and registered.
2. If there is a conflict, if the files are located elsewhere, copy the files to referred locations and register the files, or uninstall current version of office and reinstall the desired version of office.
3. Typical Locations of the **Microsoft forms 2.0 Object Library** would be:

|  |  |  |
| --- | --- | --- |
| Object | 32-bit Office | 64-bit Office |
| **Microsoft forms 2.0 Object Library** | C:\Windows\System32\FM20.dll | C:\Windows\SYSWOW64\FM20.dll |

1. In the debug phase of the project, go to **Tool** > **Options** > **General**, and tick preferred error trapping.
   1. **Break on All Errors** is useful if the program crashes.
   2. **Break on Unhandled Errors** is useful in the development and test phases of the project.

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### Visual Basic settings

#### Check version of the Visual Basic Modules

1. On the **Developer** tab, in the **Code** group, click **Visual Basic**.
2. Go to **View > Project Explorer.**
3. Click on the name of the different forms and modules.
4. Click on the **View Object** button to inspect the graphical user interface for the selected form.
5. Click on the **View Code** button to inspect the Visual Basic code for the selected module.

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1. Following modules should be included in version 4.0.2:
   1. **ModuleMain** – initiates global data types, language settings, global data (normative data for the Norwegian population), error handling routines. The **startup macro** - Public Sub **health\_and\_quality\_of\_life\_macro**() – is called from Excel.
   2. **frmStart** – startup screen for the registration program. The user is allowed to select different functions.
   3. **frmRegisterNewUser** – screen for registration of a person.
   4. **frmUserFormSF36** – screen for viewing the result of the SF-36 surveys for selected person.
   5. **frmUserFormVAS** – screen for viewing the result of the health problems for selected person.
   6. **frmNewSurvey** – screen for registering of symptoms and performing the SF-36 survey. The first time the form is filled in, the form is blank. The next time, the values from previous survey are displayed, and the values can be edited. The program is made this way to minimize the time it will take to fill in subsequent surveys.

#### Check if normative data is correct included and hidden

1. Under **Project Explorer** > **Microsoft Excel objects**, for the sheet **NormativeDataNew**, change the property for Visible from **xlSheetHidden** to **xlSheetVisible**.
2. Go to the sheet **NormativeDataNew** in the Excel workbook to inspect the data.
3. The first version of the SF-36 registration program used Normative data for the Norwegian population from 1998. [Loge, J.H. and S. Kaasa, Short form 36 (SF-36) health survey: normative data from the general Norwegian population. Scandinavian Journal of Public Health, 1998. 26(4): p. 250-258.]
4. In 2019, the SF-36 registration program was updated for collection of a new dataset. New normative data for SF-36 for Norway from 2017 was included after personal communication with Andrew Malcolm Garratt at the Norwegian Institute of Public Health, NIPH (Folkehelseinstituttet, FHI). [Garratt AM, Stavem K. Measurement properties and normative data for the Norwegian SF-36: results from a general population survey. Health Qual Life Outcomes. 2017 Mar 14;15(1):51. doi: 10.1186/s12955-017-0625-9. PMID: 28292292; PMCID: PMC5351285.]
5. After inspecting the data in the sheet **NormativeDataNew**, go back to Visual Basic and change the sheet visibility back to **xlSheetHidden** to prevent accidental editing of the normative data.

Graphical user interface, text, application

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#### Other hidden Excel sheets

1. In addition to the sheet **NormativeDataNew**, the sheet **NormativeDataByRows** should be hidden. The old sheets **NormativeDataOld** and **NormativeDataByRowsOld** are kept for backward compatibility.
2. For each survey conducted, one new Excel sheet is created. The new sheet is hidden to prevent accidental editing. The name of the hidden Excel sheet, or **FormName** is used as access code to the conducted survey.

#### Visible Excel sheets

1. The first sheet in the Excel workbook is named **Front page**. From this sheet, the **startup macro** - Public Sub **health\_and\_quality\_of\_life\_macro**() – is called when the **Start the program** button is hit.
2. The next sheet is named **Users** and consists of a list of the persons who will take the survey.
3. The last visible sheet is named **SurveySummary** and consists of a list of completed surveys.

### Run the SF-36 registration program

#### Start the SF-36 macro

1. Go to the Excel tab **Front page**.
2. Hit the button **Start the program.**

#### Add a new person

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. From the **Health and quality of life** start screen, Hit the button **Register a new user.**
3. Enter **Name**, **Year of birth** and **Gender**.
4. According to **GDPR** (general data protection regulation), health data should be anonymized, and it should not be possible to view health data for several persons in the same view. It’s recommended to use nicknames, only forenames or codes instead of full real names. Because of restrictions in naming rules for Excel sheets, the name should not start with a number.
5. There are three options for gender: **Man**, **Woman**, and **Prefer not to say**.
6. As men and women have different biology, the **gender at birth should be reported**. If gender is not reported, the answers from the SF-36 survey is compared to the general population, but not to the men or women group.
7. If age is not reported, age is set to 20 years.

#### Remove a person

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. If there are registered any surveys for selected person, first remove all the registered surveys. Hit the button **Delete selected survey** until the drop-down list with registered surveys for selected person is empty.
3. Go to the Excel sheet named **Users** and manually delete the row for the selected person.

#### Take the first survey

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. The **Health and quality of life** start screen will appear.
3. In the **Person** group, select **Name** of desired person in the drop-down list.
4. In the **Health survey** group, hit the button **New survey for selected person**.
5. The survey date is default set to current date.
6. If the program is used to register a survey that is already taken at a prior date, the date in the field **Choose date for answering the survey** should be edited to match the survey date. Note that **Registered date** is used in the form name and will be used to identify the survey in sheet **SurveySummary** and in the drop-down list in the Health survey group in the start-screen.
7. You can add comments to the survey in the **Your notes** field. Use Shift+Enter for line break.
8. Hit **Read more about the SF-36 Health Survey** for more information about the survey.
9. Fill in **Form number** and **Months after baseline** if the survey is used to collect data for research. If Weeks is preffered before Months, change the text in the form **frmNewSurvey.frm** and in the first row of **SurveSummary** from **Months after baseline** to **Weeks after baseline.**
10. Hit the **Next button** to show the registration page for health problems.
11. Write a text for each health problem or disease and move the slider to identify the burden of the problem. 10 = worst possible condition. 0 = no problem.
12. Then hit the **Next button** and move the slider to the option that best describes your answer for each question.
13. When finished hit the **Save and Quit** button.
14. The answers are kept in a hidden Excel sheet. The VAS scores for the health problems and the calculated SF-36 scores are added as a new line to the Excel sheet **SurveySummary**.
15. There are several lists of scores.
    1. The first scores are the Normalized SF-36 scores in a T-scale (population mean = 50, population SD = 10, higher is better).
    2. The next scores are raw SF-36 scores (0-100, 100 is best).
    3. Then comes population scores used to calculate normalized scores,
    4. And population SD used to calculate normalized scores.
    5. The z-scores are the Normalized SF-36 scores in a z-scale and are used to calculate T-scores (the first list). Z-scores can be used to calculate effect size of a treatment.
    6. The column **Number of missing items** should be inspected to verify that data is correctly registered.

#### Take the next survey

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. The **Health and quality of life** start screen will appear.
3. In the **Person** group, select **Name** of desired person in the drop-down list.
4. In the **Health survey** group, hit the button **New survey for selected person**.
5. The survey date is default set to current date.
6. The Health problem list and answers from previous survey are shown to minimize the time it will take to fill in the form.
7. Inspect the answers and modify the answers where the situation has changed.
8. Save and quit.

#### Delete a survey

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. The **Health and quality of life** start screen will appear.
3. In the **Person** group, select **Name** of desired person in the drop-down list.
4. In the **Health survey** group select desired survey to delete in the drop-down list.
5. Hit the button **Delete selected survey.**

#### View results of the SF-36 survey

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. The **Health and quality of life** start screen will appear.
3. In the **Person** group, select **Name** of desired person in the drop-down list.
4. In the **Graphs** group hit the button **View general health condition: RAND SF-36.**
5. The raw SF-36 scores will be shown as bars for selected person, on a scale from 0 to 100. The mean for the general population (for matching age and gender) will be shown as a line.

Chart, bar chart

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1. Tick the box **Show norm based values** to display normalized T-scores. The mean for the population is 50, population SD = 10. Health below average is visualized as scores – ½ population SD (T-score=45) and is marked with a red line.

Chart, bar chart

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1. The first 8 bars show the 8 SF-36 categories. The next two bars show the 2 summary SF-36 categories, scores for Physical and Mental health. The last bar, General Health Composite, or Overall Health is an average of the two summary scores. The average of physical and mental health does not give any sense biologically, but the bar is used here merely to indicate if there has been a change in health in any direction.
2. The last shown image will be saved to the workbook. The picture can hide the text in the sheet **SurveySummary** and can be moved or deleted if wanted.
3. The last shown picture will also be save to a file named **tmp.bmp** in the same location as the Excel file.

#### View Health Problems

1. From the Excel sheet **Front page**, hit the button **Start the program.**
2. The **Health and quality of life** start screen will appear.
3. In the **Person** group, select **Name** of desired person in the drop-down list.
4. In the **Graphs** group hit the button **View health problems: Visual Analogue Scale.**
5. The registered health problems will be shown in a line graph. 10 = Worst possible condition, 0 = No problem.
6. The last shown image will be saved to the workbook. The picture can hide the text in the sheet **SurveySummary** and can be moved or deleted if wanted.
7. The last shown picture will also be save to a file named **tmp.bmp** in the same location as the Excel file.

Chart, line chart

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