PRISM Workshop Handout: Wellbeing Survey Analysis

Welcome to the PRISM Hands-on Workshop! This guide will walk you through analyzing wellbeing survey data using PRISM Studio.

Workshop Goals: - Set up an organized research project (YODA principles) - Convert raw Excel survey data to BIDS/PRISM format - Add proper metadata for documentation and sharing - Calculate scores and export to SPSS

Example Dataset: WHO-5 Well-Being Index
Duration: ~90 minutes
Method: Graphical interface (no command line!)

Overview of Exercises

#	Exercise	Duration	What You'll Do
0	Project Setup	15 min	Create YODA-structured project
1	Data Conversion	30 min	Excel → PRISM format
2	Metadata & Validation	25 min	Add item descriptions and validate
3	Scoring & Export	20 min	Calculate scores → SPSS file

Interface Screenshots

Getting Started

Launch PRISM Studio

Windows (standalone executable): - Double-click `Prism.exe` - Browser opens to **http://localhost:5001**

From source:

```
# Windows
.\.venv\Scripts\Activate.ps1
python prism-studio.py

# macOS/Linux
source .venv/bin/activate
./prism-studio.py
```

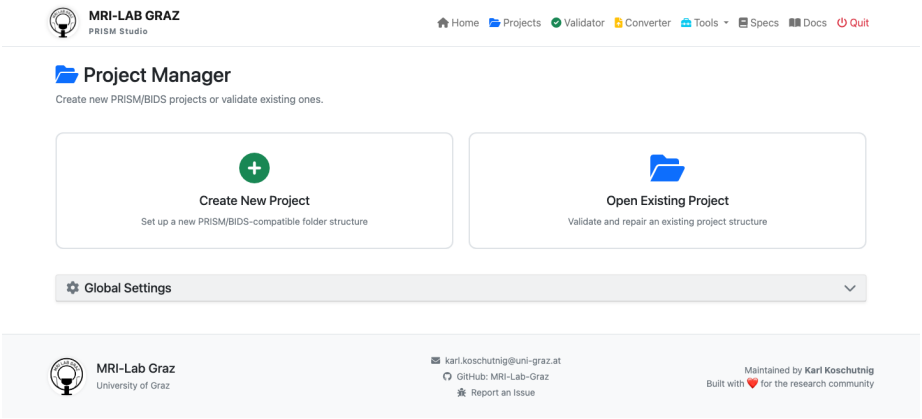

Figure 1: Workshop Start - Projects

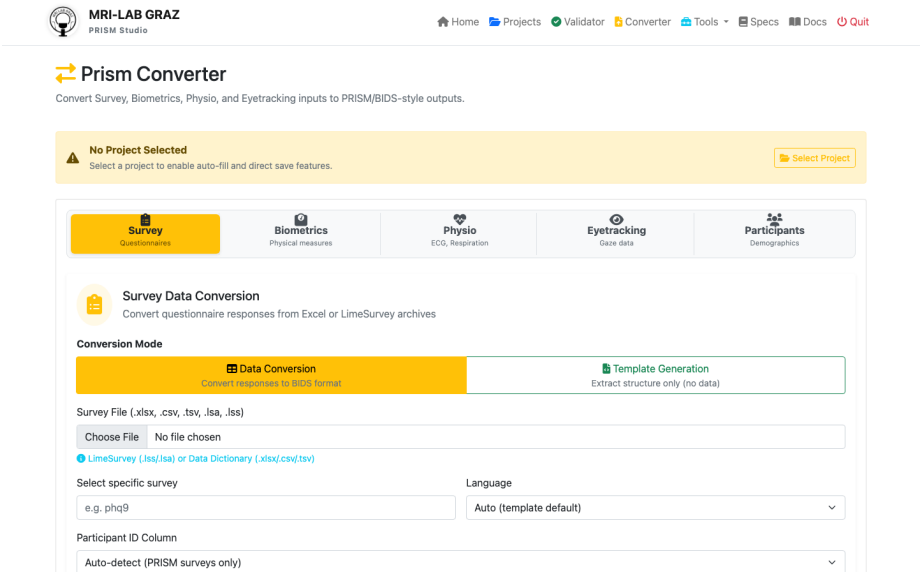

Figure 2: Exercise 1 - Data Conversion

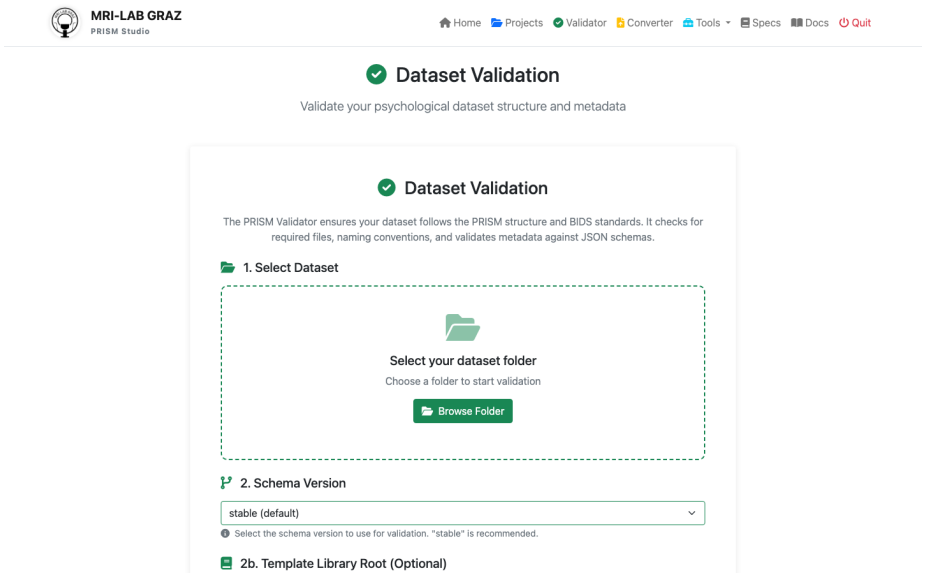

Figure 3: Exercise 2 - Validation

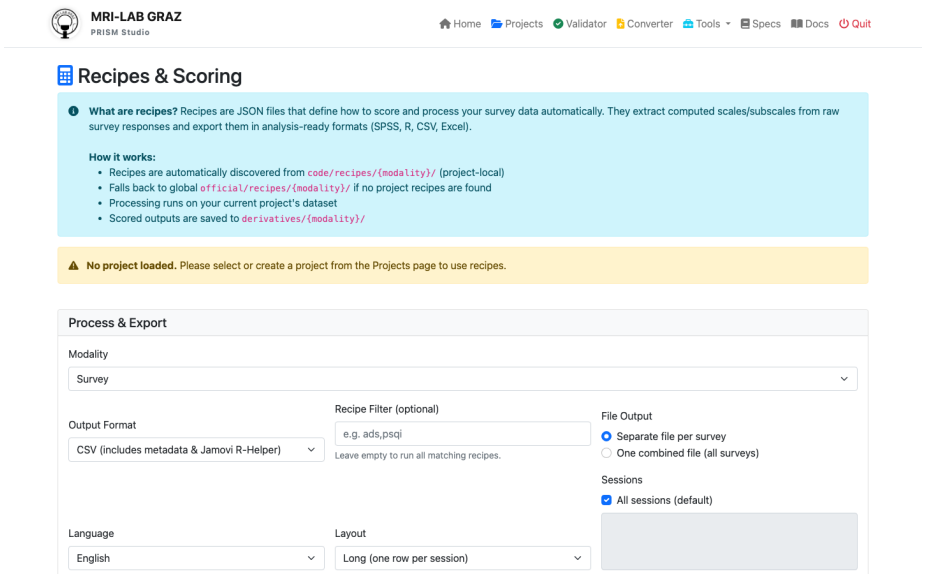

Figure 4: Exercise 3 - Recipes

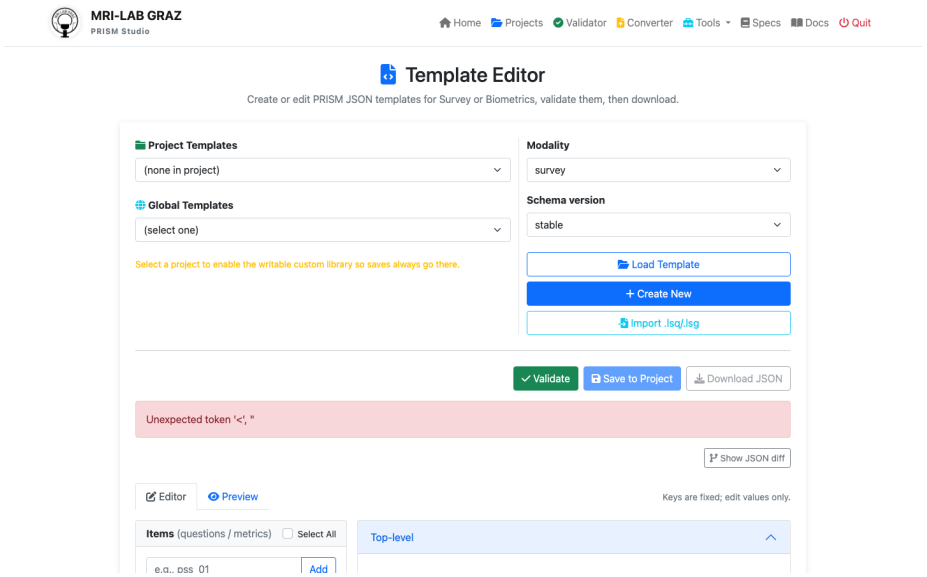

Figure 5: Exercise 4 - Templates

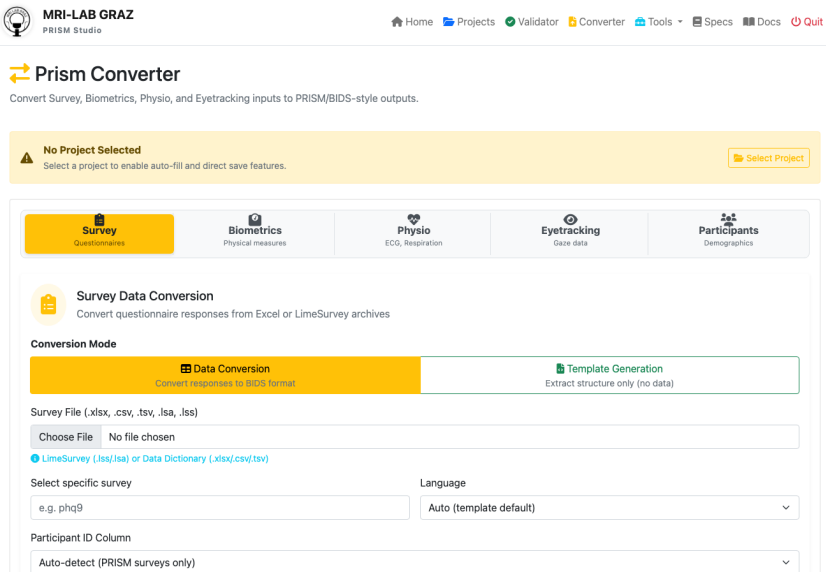

Figure 6: Exercise 5 - Participant Mapping

Workshop Materials

Located in `examples/workshop/`: - `exercise_0_project_setup/` - Instructions for YODA setup - `exercise_1_raw_data/raw_data/wellbeing.xlsx` - Raw survey data - `exercise_3_using_recipes/recipe-wellbeing.json` - Scoring recipe - `exercise_4_templates/survey-wellbeing.json` - Metadata template

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Exercise 0: Project Setup with YODA

Time: 15 minutes
Goal: Create an organized, reproducible research project

Why YODA?

YODA (Yet anOther Data Analysis) separates: - **sourcedata/** - Original files (preserved, never edited) - **rawdata/** - Standardized PRISM format - **code/** - Analysis scripts - **derivatives/** - Results and exports

This structure enables version control, reproducibility, and collaboration.

Steps

1. **Navigate to Projects**
   - Click **Projects** in sidebar
   - URL: http://localhost:5001/projects
2. **Create New Project**
   - Project Name: `Wellbeing_Study_Workshop`
   - Location: Choose your preferred folder (Desktop, Documents, etc.)
   - Template: **YODA Structure** (if option exists)
3. **Required Before Create: Fill Study Metadata (13 fields)**

- Open the **Study Metadata** section in the form
- Complete all required fields until no missing-field warning remains
- If you see **"Complete Study Metadata (13 fields missing)"**, continue filling fields first

4. **Create & Activate**

- Click **Create & Activate** only after all 13 metadata fields are complete

5. **Verify Structure** Your project should have:

```
Wellbeing_Study_Workshop/
  sourcedata/
  rawdata/
  code/
  derivatives/
```

`README.md`

6. **Confirm Active**
   - Top of screen shows: "Active Project: Wellbeing_Study_Workshop"

Complete! You have a professional research project structure.

Exercise 1: Converting Raw Survey Data

Time: 30 minutes
Goal: Transform `wellbeing.xlsx` into BIDS/PRISM format

Understanding the Raw Data

Open `examples/workshop/exercise_1_raw_data/raw_data/wellbeing.xlsx` to see:

Column	Description
`participant_id`	DEMO001, DEMO002, …
`session`	baseline, followup, …
`age`, `sex`, `education`, `handedness`	Demographics
`WB01` - `WB05`	WHO-5 survey items (0-5 scale)
`completion_date`	When survey was taken

WHO-5 Items: - WB01: "I have felt cheerful and in good spirits" - WB02: "I have felt calm and relaxed" - WB03: "I have felt active and vigorous" - WB04: "I woke up feeling fresh and rested" - WB05: "My daily life has been filled with things that interest me"

Conversion Steps

1. Open Survey Converter

- Click **Converter** in navigation
- Select **"Survey Data Converter"** or **"Raw Data to BIDS"**

2. Upload File

- Click **Browse** or **Choose File**
- Navigate to `examples/workshop/exercise_1_raw_data/raw_data/wellbeing.xlsx`
- Click **Upload**
- Preview should show your data

3. Map Columns Identity Mapping: - **Participant ID** → Select `participant_id` column - **Session** → Select `session` column - *(System will format as sub-DEMO001, ses-baseline)*

Survey Settings: - **Task Name:** `wellbeing` - *(Used in filenames: task-wellbeing)* - **Modality:** `survey` - **Suffix:** `survey`

Data Columns: - Survey items (`WB01-WB05`) automatically included - Demographics can be added to `participants.tsv`

4. Configure Output

- **Output Directory:**
  - Click **Set Output Folder**
  - Navigate to your project's `rawdata/` folder
  - `Wellbeing_Study_Workshop/rawdata/`
- **Options to Enable:**
  - Generate JSON sidecars
  - Create participants.tsv
  - Create dataset_description.json

5. Convert

- Click **Convert to BIDS** or **Generate**
- Wait for progress bar
- Success message shows number of files created

6. Review Structure Navigate to `Wellbeing_Study_Workshop/rawdata/`:

```
rawdata/
  dataset_description.json
  participants.tsv
  sub-DEMO001/
     ses-baseline/
         survey/
             sub-DEMO001_ses-baseline_task-wellbeing_survey.tsv
             sub-DEMO001_ses-baseline_task-wellbeing_survey.json
  sub-DEMO002/
     ses-baseline/
         survey/
             sub-DEMO002_ses-baseline_task-wellbeing_survey.tsv
             sub-DEMO002_ses-baseline_task-wellbeing_survey.json
...
```

Key Points: - Every data file (`.tsv`) has a metadata sidecar (`.json`) - Filenames follow BIDS convention: `sub-<ID>_ses-<SESSION>_task-<NAME>_<SUFFIX>.<EXT>` - Folder hierarchy: Dataset → Subject → Session → Modality

Complete! Your data is now in PRISM format.

Exercise 2: Adding Metadata & Validation

Time: 25 minutes
Goal: Document your survey and validate the dataset

Why Metadata Matters

JSON sidecars make your data: - **Self-documenting** - Anyone can understand what was measured - **Reusable** - Others can reanalyze your data - **Citable** - Proper attribution to original survey authors - **Machine-readable** - Tools can automatically process it

Steps

1. Run Validation

- Go to **Validator** or **Home**
- Click **Select Dataset**
- Choose `Wellbeing_Study_Workshop/rawdata/`
- Click **Validate Dataset**

Expected errors: - Missing survey metadata (name, authors, citation) - Missing item descriptions - Missing response level labels

2. Copy Template to Your Project The wellbeing survey template already exists. Copy it: - **From:** `examples/workshop/exercise_4_templates/survey-wellbeing.json` - **To:** Your project's library folder (PRISM Studio may have a "Library" section)

Or use the Template Editor in PRISM Studio: - Go to **Tools** → **Template Editor** - Browse to `examples/workshop/exercise_4_templates/survey-wellbeing.json` - Click **Load Template**

3. Edit a Sidecar Open any survey sidecar JSON file: `rawdata/sub-DEMO001/ses-baseline/survey/sub-D`

Using PRISM Studio: - Click **Edit** next to the file in validation results - Or use **Tools** → **JSON Editor**

Manual editing: - Open in text editor (VS Code, Notepad++, etc.)

4. Add Required Metadata Merge content from `survey-wellbeing.json` into your sidecar:

```
{
  "Study": {
    "OriginalName": {
      "en": "Wellbeing Survey (WHO-5 adapted)"
    },
```

```
    "Abbreviation": "WB",
    "Authors": ["Topp", "C.W.", "Østergaard", "S.D.", "Søndergaard", "S.", "Bech", "P."],
    "Year": 2015,
    "DOI": "10.1159/000376585",
    "NumberOfItems": 5,
    "Instructions": {
      "en": "Please indicate for each of the five statements which is closest to how you hav
    }
  },
  "WB01": {
    "Description": {
      "en": "I have felt cheerful and in good spirits"
    },
    "Levels": {
      "5": {"en": "All of the time"},
      "4": {"en": "Most of the time"},
      "3": {"en": "More than half the time"},
      "2": {"en": "Less than half the time"},
      "1": {"en": "Some of the time"},
      "0": {"en": "At no time"}
    }
  },
  ... (repeat for WB02-WB05)
}
```

Tip: Copy the entire template content - it's faster than typing!

5. Validate Again

- Run validator again
- Check that errors are resolved
- All survey files should now pass validation

Complete! Your dataset is now fully documented and valid.

Exercise 3: Calculating Scores & Exporting

Time: 20 minutes
Goal: Calculate wellbeing total scores and export to SPSS

Understanding Recipes

Recipes are instructions for: - Calculating total/subscale scores - Handling reverse-scored items - Computing derived variables - Applying quality checks

Steps

1. Copy Recipe to Your Project

- **Source:** `examples/workshop/exercise_3_using_recipes/recipe-wellbeing.json`
- **Destination:** Create a `recipes/` folder in your project:

```
Wellbeing_Study_Workshop/
   recipes/
       survey/
           recipe-wellbeing.json
```

Or use PRISM Studio: - Go to **Recipes** or **Tools** → **Recipes** - Click **Import Recipe** - Browse to `recipe-wellbeing.json`

2. Review Recipe Content The recipe specifies:

```
{
  "Survey": {
    "Name": "Wellbeing"
  },
  "Scores": {
    "Total": {
      "Items": ["WB01", "WB02", "WB03", "WB04", "WB05"],
      "Method": "sum",
      "Range": {"min": 5, "max": 35}
    }
  }
}
```

This means: Sum all 5 items to get total score (5-35 range)

3. Run Recipe In PRISM Studio: - Go to **Recipes & Scoring** - Select your dataset: `rawdata/` - Select recipe: `recipe-wellbeing` - Click **Run Recipe**

4. Configure Export **Format Options:** - **SPSS (.save)** - Recommended! Includes value labels - **Excel (.xlsx)** - Good for quick viewing - **CSV (.csv)** - Plain text, universal

Layout: - **Long format** - One row per session (sub-DEMO001, baseline) - **Wide format** - One row per participant (multiple session columns)

Select: SPSS (.save), Long format

5. Export Results

- Output location: `Wellbeing_Study_Workshop/derivatives/`
- Filename: `wellbeing_scores.save`
- Click **Export**

6. Verify in SPSS/Excel Open the exported file:

```
derivatives/
  wellbeing_scores.save
```

Expected columns: - `participant_id` - `session` - `WB01`, `WB02`, `WB03`, `WB04`, `WB05` (original items) - `Total` (calculated score) - Demographics (if included)

In SPSS: - Variable labels are preserved - Value labels show ("All of the time", "Most of the time", etc.) - Ready for statistical analysis!

Complete! You have analysis-ready data with calculated scores.

Summary & Next Steps

What You've Accomplished

1. Created a YODA-structured research project
2. Converted raw Excel data to BIDS/PRISM format
3. Added comprehensive metadata for reproducibility
4. Calculated wellbeing scores using a recipe
5. Exported analysis-ready data to SPSS

Your Final Project Structure

```
Wellbeing_Study_Workshop/
  sourcedata/
     wellbeing.xlsx           # Original file (preserved)
  rawdata/
     dataset_description.json
     participants.tsv
     sub-*/ses-*/survey/       # PRISM-formatted data
  code/                         # Your analysis scripts go here
  derivatives/
     wellbeing_scores.save      # Calculated scores
  recipes/
      survey/
          recipe-wellbeing.json
```

Next Steps with Your Own Data

To use PRISM with your research:

1. **Survey Library**
   - Check `official/library/survey/` for existing surveys
   - Create custom templates for your instruments
   - Share templates with community!
2. **Recipes**

- Browse `official/recipe/survey/` for scoring formulas
- Adapt existing recipes or create new ones
- Include subscales, reverse coding, cutoff scores

3. **Data Sharing**
   - PRISM datasets are BIDS-compatible
   - Can be uploaded to OpenNeuro, OSF, etc.
   - Metadata ensures others can understand your data
4. **Integration with Analysis**
   - Use BIDS Apps (fMRIPrep, etc.) if you have imaging data
   - Import SPSS files into R, Python, JASP, Jamovi
   - Metadata is preserved throughout pipeline

Resources

- **Documentation:** https://psycho-validator.readthedocs.io/
- **Issues/Questions:** https://github.com/your-repo/prism-validator/issues
- **Survey Templates:** `official/library/survey/`
- **Example Recipes:** `official/recipe/survey/`

Feedback

We'd love your feedback! - What worked well? - What was confusing? - What features would help your research?

Thank you for attending the PRISM workshop!