Social Contact and Stigma Towards People With Mental Illness: Evaluating the Moldovan Mental Health Reform

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Abstract

Stigma has been identified as a significant barrier to the success of mental health promotions and programs. Therefore, understanding stigma towards individuals with mental illness is crucial for promoting inclusion and advancing the mental health systems. However, there is limited research focused on factors that contribute to stigma reduction. The Moldovan government in collaboration with the Swiss Agency for Development and Cooperation have been implementing a mental health reform (MENSANA) in Moldova, aimed to establish a community based mental health system. This study is aimed to examine the differences in stigma levels using the Community Attitudes towards the Mentally Ill (CAMI) scale across various socio-demographic characteristics. Additionally, the study explored the association of piloting districts with the mental health reform and the overall score of CAMI. In a cross-sectional study, the sample comprised 2973 adults. One-way ANOVA and T-test were used to assess the difference in CAMI scores across socio-demographic variables. Moderation analysis was conducted using PROCESS version 3.5. Results from the analysis of variances indicated slightly higher stigma levels among individuals with lower educational attainment ($F=10.813$, $df1=3$, $df2=2969$, p-value=<0.001). The independent t-test revealed that stigma levels were slightly higher among males who lacked social contact with individuals with mental illness ($t=-4.257$, $df=2971$, $p<0.001$; $t=-5.322$, $df=2971$, $p<0.001$). Although social contact was not found to be a moderator of piloting districts with mental health, a significant main effect was found, demonstrating that stigma was lower among those who have prior social contact experiences with individuals with mental illness ($B=0.0855$, $SE=0.0167$, $t=5.1149$, $p<0.001$). This study demonstrated that prior contact experiences with the mentally ill is a significant predictor of stigma level. To that end, follow-up research is needed to concretize the results into a stigma reduction program in Moldova.

I. Introduction

I.I Problem description

In middle- and low income countries (LMICs), 250 million individuals worldwide suffer from mental health issues, with poverty being a significant contributing factor. In LMICs, people are more exposed to unemployment, insecurity, hopelessness, and social change – factors that escalate the risk of mental illness (Patel & Kleinman, 2003). Living in that condition increases the risk of suffering from schizophrenia, mood disorders, and other major depressive disorder (MDD) when compared to those who are economically well-off (Blazer et al., 1994).

Moldova is among the poorest countries in Europe. In Moldova, the public services are in dire need of improvement – followed by corruption, insufficient efforts to increase the standard of living, and lack of strategic relationship with neighboring countries. Factors that contribute in hindering the poverty reduction efforts – leading to slow economic progress. In 2020, the national poverty headcount ratio in Moldova was over 26%, one of the highest in Europe (The Economist, 2021; BBC, 2022; Petrea et al., 2020; Szeles, 2021; World Health Organization, 2022; The World Bank, 2023). Trani et al. (2015) demonstrated that vulnerable social conditions pose a significant risk to mental health. In that regard, Moldova spent only 4.77$ per capita on mental health and has been demonstrated to have low resources of mental health support in community settings, an increased institutionalized mental health system, and underdeveloped informal services (de Vetten-Mcmahon et al., 2019). Moldova also has the highest suicide rate per 10.000 population in comparison to other South-eastern Europe Health Network (SEEHN) and EU15 average (Rechel et al., 2014; Turcanu et al., 2012). This underlying evidence underscores the importance of addressing the status of the mental health system in Moldova.

Furthermore, mental illness is a leading cause of morbidity in primary care settings and can result in considerable disability, particularly in low-income communities (Kuruvilla & Jacob, 2007). People with mental illness are frequently seen as dangerous, violent, and more likely to commit crime. These forms of negative perceptions and attitudes often lead to stigma towards the mentally ill – leaving people with mental illness unfavorable outcomes such as withdrawal behaviors, low self-efficacy, and difficulties to recover and find housing, reluctance to seek treatment – abandoning people with mental illness without support (Ow et Lee, 2012; Sari & Yuliastuti, 2008; Rüsch et al., 2005, Trani et al., 2015). In addition, a more prevalent mental illness in LMICs has become more visible and it has perpetuated extreme poverty by intensifying existing psychological distress and poor health (Kumar & Kumar., 2020). These evidence suggest that urgent actions are needed, specifically in understanding relevant factors of stigma, so that evidence based actions can be implemented. Hence, stigma towards the mentally ill exacerbates the already difficult conditions faced by people

with mental illness, making their struggles worse and causing people that are already trapped in poor conditions to become more deprived.

I.II MENSANA: The mental health reform in Moldova

In 2005, the Moldovan government started to initiate a mental health reform. In 2014, the plan was implemented to improve the mental health care system by encouraging deinstitutionalization of mental health services and creating comprehensive guidelines to develop and implement better mental health services at the community level (Frasch et al.,2020). The implementation phase includes designing a major service delivery for cross-sectional collaboration and revision of the policy framework which was guided by the Swiss Agency for Development and Cooperation (SDC) and led by the MENSANA Consortium. The reform consists of three main phases: Phase 1 (2014-2018), phase 2 (2018-2022), and phase 3 (2022-2024). Phase one includes improving services and education curricula to enhance the ability of mental health professionals and related sectors, as well as selecting 4 pilot districts for implementation. Phase two of the program consists of upscaling the 4 districts into 32 districts and shifting ownership to national authorities. Lastly, phase three of the program is aimed to strengthen and develop mental health services without the support of MENSANA, along with increasing awareness, literacy and acceptance, mental health promotion, and support for those with mental illness (Frasch et al., 2020; Petrea et al., 2020). Thus, the mental health reform in Moldova, aimed at improving the mental health system through deinstitutionalization and implementation of community-based mental health services, is already underway.

Throughout the three phases, there has been an improvement regarding the Moldovan mental health system such as: Implementation of the WHO recommendation mental health model[1], pilot network supporting human rights and stigma prevention, events to reduce stigma and discrimination, creating community mental health centers, etc (Mensana Project, n.d.: World Health Organization, 2009). Additionally, another outcomes include improvement in mental health access and network realization of community based services, a more comprehensive enabling policy at both national and local levels, existing support to reintegrate people with mental health issues back to the community, as well as an improvement in access and responsiveness of care and in mental healthcare-seeking behavior (Petrea et al., 2020). This indicates that to some extent, the reform has led the Moldovan mental health system into a more inclusive model at national level – transitioning the mental health care closer to the community.

I.III Responding to the needs of research and evaluation on mental health reform in Moldova

However, more discriminative and prejudiced attitudes vis-à-vis people with mental illness are reported to be higher within the districts where the mental health reform was not carried out (IP

[1] The WHO Pyramid Framework describes the optimal mix of services for mental health. The pathway is as follows: family → social services → family doctor → community mental health centers → specialized psychiatric hospitals → community mental health centers

Trimbos Moldova, 2019). These existing barriers can lead to stigma towards people with mental illness which can affect treatment and care seeking by undermining individuals' attitude and behavior towards health decisions (Corrigan et al., 2014). Stigma towards the mentally ill can also lead to low-standard medical care and consequently produce pitfalls by hindering the reform's intention to improve the care system (Corrigan et al., 2004). Therefore, it is crucial to understand stigma and its underlying factors as part of the evaluation of the Moldovan mental health reform.

Although several studies have been done to evaluate and monitor the ongoing reform, the emphasis has been mainly about the reform's achievement and availability in mental health care and services (de Vetten-Mc Mahon, 2019; Frasch et al., 2020; Petrea et al., 2020). To have an in-depth understanding of the mental health reform, it is important to not only have information about the improvement of mental health care and services, but also to assess the population's attitude and perception towards the mentally ill in order to extensively cover the reform's influence on population level. Hence, research and evaluation have become a necessity for policy makers and program implementers to improve the ongoing effort in improving the mental health system in Moldova.

I.IV Scientific and Social Relevance: Mental health reform, stigma, and the role of social contact

During the stage 3 of MENSANA implementation, the main objectives are to increase awareness, literacy and acceptance, mental health promotion, and support to establish inclusive and good quality mental health services. Nevertheless, as long as stigma towards the mentally ill is still prevalent, it may be extremely difficult to achieve those goals as it increases barriers and discourages the search of diagnosis and treatment for those who want to seek help (Esanu et al., 2020). Stigma also stems from complex levels of individual (intrapersonal), society (interpersonal), and health systems (structural) – and in this regards, it discourages one's willingness to recover, increases the already existing economic burden and avoidance, and substantially decreases the quality of healthcare by lowering treatment compliances (Javed et al., 2021; Corrigan et al., 2013). Even though an improved quality of mental health care and services are already in place, existing stigma can potentially make people reluctant to get a treatment out of being afraid and feeling ashamed. Therefore, conducting research that focuses on stigma towards people with mental illness during the implementation phase of MENSANA is essential to ameliorate the reform. It allows more understanding of the population's attitude towards individuals with mental health conditions. This will enable the development of more effective programs during the Moldovan mental health reform.

Moreover, reducing stigma and discrimination has become a relevant effort to upgrade mental health care and services because it can contribute to improving treatment of mental disorders and prevent depression, anxiety as well as other mental health issues (Walker-Noack et al., 2013). In LMICs, there is still limited information regarding important factors that can reduce stigma and there is limited focus on behavioral change approach on stigma (Heim et al., 2018). The majority of efforts in reducing public stigma in LMICs have been either ineffective in the long term or having poor

qualities (Mehta et al., 2015). Therefore, it is crucial to prioritize research in the effectiveness and viability of programs and interventions designed to reduce stigma. In that respect, there is a general consensus that mental health interventions containing social contact and first person narrative are more efficient than others (eg., increasing knowledge) (Clement et al., 2013; Mehta et al., 2015). This study is intended to investigate the role of social contact during the mental health reform in Moldova.

This study applies a sociological approach to analyzing stigma towards individuals with mental illness in Moldova, aiming to improve interventions and policies in public health. Kivits et al. (2013) acknowledge the substantial contribution of both the health discipline and social sciences to public health. In addition, sociological perspectives have been contributing to the field of mental health since the late 1980s, providing a multidisciplinary approach (Pescosolido, 2013). Thus, this study's interdisciplinary analysis of stigma aims to enhance public health programs, policies, and interventions on mental health in Moldova.

I.V Overview of Existing Research: Existing research on social contact and stigma towards the mentally ill

Attempts to erase public stigma have been categorized into three main categories: Education, contact, and protest (Corrigan & Penn, 1999). Research concerning the contact theory to reduce prejudice has started since the development of intergroup contact theory (Allport, 1954). Subsequent to that, multiple studies have shown that social contact between the stigmatized group and majority group can reduce prejudice when certain conditions are met including institutional support, direct face to face interaction, enough frequency and duration (Martínez-Hidalgo, 2018). Time to Change (TTC), an anti-stigma campaign aimed to reduce stigma and discrimination towards the mentally ill in England, implemented roadshows and physical activities events aimed to bring together members of the community with or without mental health problems to engage in various activities in a real world setting. A study has shown that the program was associated with an improvement in behavioral intentions and intergroup relations (Evans-Lacko et al., 2012). Another school-based intervention that used contact-based conditions conducted in Italy also shows that social contacts were favorable in improving attitudes about mental illness (Lanfredi et al., 2019). In addition, a number of studies suggest that people with prior contact with the mentally ill are less likely to endorse negative attitudes and social distance while on the contrary, people with low-contact endorse more rejection (Couture & Penn, 2003).

On the other hand, implementation of anti-stigma programs and intervention is still hard to realize in LMICs as existing knowledge on effective interventions and the mechanism of stigma is still limited (Yang et al., 2007). It is commonly known that cultural diversity in many cultures and different social characteristics, have made generalization of anti-stigma programs hard to be realized. Several innovative approaches have been devised to tackle stigma and enhance mental health

awareness through campaign, awareness, and public education. However the impact of these activities are still roughly unknown (Kakuma et al., 2010). Despite that, one longitudinal study in rural India demonstrates that using social contact in first narration intervention improved knowledge, attitude, behavior, and reduced stigma related to help-seeking (Maulik et al., 2016; Maulik et al., 2019).

I.VI The study goals and research questions

Because the goal of this study is to investigate the association between the Moldovan mental health reform and stigma towards the mentally ill, a clear understanding of the population's attitude is essential. In this regard, studies aimed at understanding stigma towards mental illness in LMICs have utilized the Community Attitude Towards the Mentally Ill (CAMI) scale (Abdullah et al., 2021; Hartini et al., 2018; Taylor et al., 1979; Taylor et Dear, 1981). It is hoped that evaluating the program will lead to better policy making in mental health and thereby improve the care functioning for the Moldovan population. Hence, analyzing the phenomenon of mental illness and stigma in Moldova can support more efficient mental health programs.

This study has two main aims. The first one focuses on exploratory purposes by investigating the stigma level across different demographic groups including age, gender, educational levels, employment status, marital status, and social contact experiences. The exploratory approach will enable us to fill the knowledge gap because the level of stigma between age groups, gender, educational levels, and employment status is not known yet. Understanding the level of stigma across demographic items would be valuable as an insight for program implementers and key stakeholders in identifying relevant groups when developing mental health programs.

Secondly, this study aims to test the association between piloting the districts with the mental health reform and the population's stigma towards the mentally ill. In addition, the study also seeks to investigate the role of social contact by testing whether prior social contact experiences with the mentally ill moderate the direct effect between piloting the district and the population's stigma towards the mentally ill. Throughout the mental health reform in Moldova, little is still known on what the reform means with regards to stigma and testing the association would add valuable insight for both science and policy practices.

That being said, the research questions are as follows:

1) What is the difference in stigma between different groups of a) age, b) gender, c) educational levels, d) employment status, e) marital status, and f) social contact experiences.

2) What is the association between piloting the districts with mental health reform (MENSANA) and stigma?

3) What is the association between social contact experiences with people with mental illness and stigma?

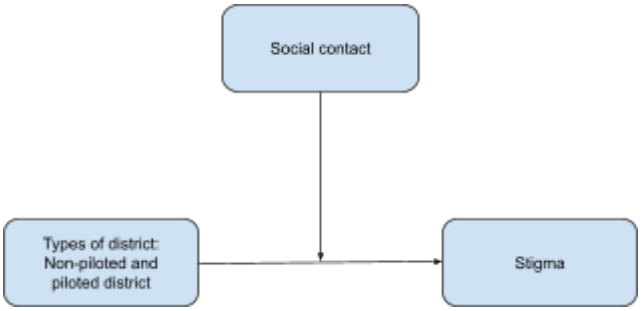
4) Does contact experience with the mentally ill moderate the association between piloting the districts with mental health reform (MENSANA) and stigma and thereby reduce stigma?

I.VII Theoretical Framework

This part will be focused on the theory of stigma and social contact with the mentally ill. Stigma will be contextualized as public stigma developed by key thinkers in sociology and social psychology. In addition, theories on social contact as means to minimize stigma will be assessed.

Figure 1

Conceptual model: A moderation model



Stigma towards the mentally ill

Stigma is a social construct that negatively distinguishes individuals based on social or physical attributes and accompanied by behavioral expectations (Goffman, 1963). Within the context of mental illness, stigma contains three dimensions: stereotype, prejudice, and discrimination (Feldman & Crandall, 2007; Corrigan & Bink, 2005). These dimensions can, not only subject individuals with mental illness to discrimination but also infringe upon their fundamental right to healthcare, potentially leading to increased mortality rates (Druss et al., 2011; Rathore et al., 2008). The study of mental illness stigma traditionally falls within two main domains of social sciences: social psychology and sociology. Social psychology primarily focuses on aspects such as public stigma, self-stigma, and label avoidance, exploring the attitudes and beliefs held by the general population towards individuals with mental illness. On the other hand, sociologists primarily focus on structural stigma, which examines the broader social and institutional factors that contribute to the perpetuation of stigma and discrimination towards people with mental illness.

Public stigma refers to the discriminatory attitudes and actions displayed by the general population towards individuals with mental illness. It encompasses the beliefs and behaviors of the public towards people with mental illness. For instance, the general public often attributes responsibility for mental illness to the affected individuals, resulting in blame and perceptions of diminished capability in the workplace (Corrigan & Bink, 2005). Therefore, this study aims to assess community attitudes towards individuals with mental illness in Moldova, focusing on the concept of public stigma. .

Social contact

The hypothesis that social contact increases familiarity and thereby less likely to stigmatize mental illness, was initially proposed in the context of racial prejudice by suggesting that social contact between different groups, such as majority and minority races, can foster more positive perceptions of the out group among in-group members (Allport, 1954). Contact vis-à-vis people with mental illness suggests that social contact between people with and without mental illness can promote positive attitudes and perception towards the mentally ill (Felix & Lynn, 2022).

There have been consistent results demonstrating that contact with the mentally ill in both personal and professional settings, contact through family and friends, contact in a controlled environment of voluntary engagement of mental illness reduced stigma and contributed to more positive attitudes towards the mentally ill (Adu et al., 2022; Corrigan et al., 2001). Additionally a study by Alexander & Link (2003) has shown that contact by experience at work, in public, and family setting significantly predicted stigmatizing attitudes and are associated with less negative attitudes towards people with mental illness. In addition to public education strategies as means to reduce stigma towards people with mental illness (Corrigan et al., 2012), attempts to reduce stigma using social contact is considered to be important because social contact as additional intervention contributes in creating positive interactions and connections between people with mental illness and without. Therefore, efforts to reduce stigma must be intensified, with social contact identified as key strategies to challenge pre-existing stereotypes (Thornicroft et al., 2016).

II. Research Methods

II.I Design and Procedures

This study used quantitative data from the KAP study (Knowledge Attitude Practice) in Moldova. The data collection used repeated-cross sectional design. This is the second survey on stigma that has been conducted in Moldova. The sample included 2973 (N=2973) respondents structured in eight samples based on districts. The data collection was done by FOP-STAR on behalf of MENSANA and was conducted in June of 2022. The procedure of application was face-to-face at the residence of the respondents. The minimum requirement was the PAPI (Paper Assisted Personal Interview) method. Furthermore, the duration of the interview was around 30 minutes and the research instrument was available in Romanian and Russian, adjusting to the respondent's preference. The used dataset for this thesis is the English translated version. Data collection was done through a mobile group operator. This was intended to reduce the data collection period and increase the yield and quality of field data

II.II Participants and Recruitment

The study population consists of Moldovan residents over 18 years of age living in eight selected districts. The districts were categorized into two groups of districts of those that were piloted

by MENSANA (RP) and those that were not piloted by MENSANA (RNP) since phase one of the mental health reform. The RP districts are Cimislia, Soroca, Cahul, and Orhei. RNP are Leova, Edinet, Hincesti, and Ungheni. The districts were made into a dichotomous variable: non-piloted districts and piloted districts. Participants were recruited through random selection using the locality, household, and person selection method. The study includes 42.2% men and 57.8% women, with an average age of 49.4 years. Employment status includes 41.2% employed, 19.2% unemployed, 4.5% students, and 35.1% retired. Exclusion criteria are people under 18 years of age and who are not living in the eight selected districts. When selected participants refused to participate, the probabilistic selection was continued with the same statistical step.

II.III Variables of Interest and Operationalization

The study employs the Community Attitudes towards the Mentally Ill (CAMI) as the dependent variable to measure stigma towards individuals with mental illness in Moldova. CAMI is a Likert scale variable with a range of 1-5 indicating Strongly Disagree to Strongly Agree (Taylor et al., 1979); Taylor & Dear, 1981). It has been used as a gold standard for assessing stigma. CAMI consists of four subscales, with 10 items for each one: Authoritarianism, Social restrictiveness, Benevolence, Mental health ideology. This study took The overall reliability of CAMI is acceptable (Cronbach α=0.769). The study created a single index variable of CAMI by calculating the mean score from 40 items. Each CAMI subscale had positively coded items and five negatively coded items. All items were coded positively prior to analysis and response “I don’t know” was excluded from the analysis. Stigma, in the result section, refers to the CAMI mean score.

Authoritarianism reflects a perspective of the mentally ill as an inferior group that requires coercive handling. Authoritarianism embeds the need for hospitalization for the mentally ill, the difference between people with mental illness and people without, and the importance of custodial care (e.g., As soon as a person shows signs of mental disturbance, he/she should be hospitalized). Social restrictiveness reflects a threatening view of the mentally ill. Social restrictiveness includes statements on the dangerousness of the mentally ill, social distancing, and the normality of the mentally ill (e.g., The mentally ill are a danger to themselves and those around them). Benevolence reflects a sympathetic view of the mentally ill based on humanistic and religious principles. It includes sentiments of societal responsibility for the mentally ill, kind and sympathetic attitudes, willingness to become personally involved, and noncustodial feelings (e.g., The mentally ill have for too long been the subject of ridicule). Lastly, mental health ideology expresses sentiments of therapeutic value of the community, the impact of mental health facilities towards residential neighborhoods, the danger to local residents posed by people with mental illness, and acceptance of deinstitutionalized care (e.g., The best therapy for many mental patients is to be part of a normal community).

The Independent variable is *Districts*, a dichotomous item consisting of 4 districts non-piloted by the mental health reform (i.e. Cimislia, Soroca, Cahul, and Orhei) and 4 districts piloted by the mental health reform (i.e. Leova, Edinet, Hincesti, and Ungheni) at the time of data collection (0=Non-piloted districts and 1=Piloted districts). The moderators are dichotomous variables: Prior social contact at *work* (i.e. Are you currently living with or have you ever lived with, someone with a mental health problem?), with a *neighbor* (i.e. Do you currently have, or have you ever had, a neighbor with a mental health problem?) with a *close friend* (Do you currently have, or have you ever had, a close friend with a mental health problem?), and by *living* (i.e. Are you currently living with, or have you ever lived with, someone with a mental health problem?) with the mentally ill. An answer No indicates no prior contact at work, with a neighbor, with a close friend and by living with the mentally ill. An answer Yes indicates having prior social contact with the mentally ill at work, with a neighbor, with a close friend, and by living. Prior to analysis, the four moderator items were coded into a one single new item named *Social contact* (0=No contact and 1=Contact).

Lastly, demographic variables are *age, gender, employment, educational level, and marital status.* Age is measured categorically (i.e. 18-30; 31-45; 46-60; 61-69). Gender is a dichotomous item (i.e. 0=Male and 1=Female). Employment is measured categorically (e.i. Employed; unemployed; student; retired). Educational level is measured categorically (e.i. Primary school; high school; practical apprenticeship; university education). Marital status is measured categorically (i.e. Married; single; widowed; divorced; concubinage).

II.IV Data Analysis

This thesis used quantitative research methods, employing IBM SPSS Statistics 27 and RStudio 2022.12.0+352. To investigate the difference in Community Attitudes Towards the Mentally Ill (CAMI) between demographic items: *Age, employment, and educational level*, and *marital status*, a One-way ANOVA was performed. Because gender and social contact items are divided into two different groups (dichotomous), an independent t-test was carried out. In order to estimate the direct effect between piloting the districts and the Community Mental Health Attitudes Towards the Mentally Ill (CAMI), a simple linear regression test was done. In addition, this study also aims to investigate the role of social contact during the mental health reform in Moldova. To do that, a moderation analysis using PROCESS version 3.5 was done using the social *contact* variable as the moderator (Hayes, 2018). When doing each statistical test, the benchmark for the significance value is 0.05 (α=0.05), thus a p-value higher than 0.05 is considered as statistically insignificant. Assumption of multicollinearity in this study can be rejected if the VIF is smaller than 10. For further details on statistical assumptions and syntax of the data analysis are presented in Appendix D and Appendix E.

III. Results

III.I Demographic of the respondents

Table 1

Sociodemographic Characteristics of Participants based on non-piloted districts and piloted districts

Demographic items	Non-piloted districts		Piloted districts		Total		CAMI Mean (SD)		P-value	
	n	%	*n*	%	*n*	%	Non-pilote districts	Piloted districts	CAMI	Interaction effect
Age									0.592	0.514
18-30	232	15.6	187	12.6	419	14.1	3.36 (0.31)	3.34 (0.31)		
31-45	312	21.0	309	20.8	612	20.9	3.35 (0.29)	3.35 (0.31)		
46-60	374	25.2	371	24.9	745	25.1	3.35 (0.36)	3.33 (0.34)		
61-96	567	38.2	621	41.7	1188	40.0	3.33 (0.33)	3.35 (0.29)		
Gender									<0.001***	0.496
Male	629	42.4	626	42.1	1255	42.2	3.32 (0.21)	3.31 (0.21)		
Female	856	57.6	862	57.9	1718	57.8	3.36 (0.35)	3.37 (0.31)		
Employment Status									0.516	0.258
Employed	628	42.3	596	40.1	1224	41.2	3.34 (0.33)	3.32 (0.33)		
Unemployed	282	19.0	289	19.4	571	19.2	3.35 (0.32)	0.32 (0.31)		
Student	82	5.5	53	3.6	135	4.5	3.38 (0.33)	3.33 (0.28)		
Retired	493	33.2	550	37.0	1043	35.1	3.33 (0.33)	3.36 (0.29)		
Educational level									<0.001***	0.668
Primary school	289	19.5	299	20.1	588	19.8	3.28 (0.31)	3.30 (0.29)		
High school	316	21.3	318	21.4	634	21.3	3.33 (0.21)	3.31 (0.28)		
Practical Apprenticeship	608	40.9	607	40.8	1215	40.9	3.36 (0.33)	3.36 (0.31)		
University education	272	18.3	264	17.7	536	18.0	3.38 (0.36)	3.31 (0.34)		
Marital Status									0.052	0.048*
Married	925	49.7	937	50.3	1862	62.7	3.34 (0.31)	3.33 (0.30)		
Single	212	14.3	191	12.9	403	13.6	3.35 (0.29)	3.21 (0.29)		
Widowed	225	15.2	253	17.0	478	16.1	3.35 (0.38)	3.39 (0.32)		
Divorced	95	6.4	88	5.9	183	6.2	3.35 (0.39)	3.38 (0.28)		
Concubinage	28	1.9	17	1.1	45	1.5	3.33 (0.42)	3.54 (0.46)		

Note. N=2973. Note. *<.05. **p<.01. ***p<.001. The dependent variable is CAMI. P-value was calculated using a univariate general linear model

III.II Results for data analysis

Statistical analysis was conducted to explore the differences in stigma across demographic items. First, an independent sample t-test was carried out to find the differences in stigma across gender and social contact. Table 2 shows significant differences in the level of CAMI across groups of gender ($t=-4.257$, $df=2971$, $p<0.001$) and social contact ($t=-5.322$, $df=2971$, $p<0.001$). Females were reported to have slightly lower stigma than male (Male=3.32 and Female=3.36). Similarly, individuals who have prior contact with the mentally ill displayed lower stigma to those with no prior social contact (Yes=3.38 and No=3.31)

Table 3 demonstrates the differences in the mean score of stigma in educational level ($F=10.813$, $df1=3$, $df2=2969$, p-value=<0.001). Contrast test showed a significant difference in stigma mean scores between the two lowest educational levels (primary and high school education) and the two highest educational levels (practical apprenticeship and university education) (value=-0.1349, $SE=0.02444$, $t=-5.520$, $df=2100.639$, $p<0.001$, equal variances not assumed). Meanwhile, table 3 shows no notable score differences were observed in stigma vis-à-vis age, employment status, and marital status.

Table 5 shows both models without interaction term and the corrected model with interaction term. The model without interaction term states that social contact is a significant predictor of stigma ($B=0.064$, $SE=0.012$, $t=5.322$, $p<0.001$, VIF=1.000). This means that having prior social contact experience with the mentally ill is significantly associated with lower stigma towards the mentally ill. Corrected model indicates that both social contact and gender are significant predictors of stigma ($B=0.063$, $SE=0.012$, $t=5.282$, $p<0.001$, VIF=1.003; $B=0.049$, $SE=0.012$, $t=4.196$, $p<0.001$, VIF=1.000). The results indicate that for social contact, there is no big difference when gender and districts were introduced. For gender, when the variable goes up 1 point (from male to female), stigma is estimated to increase in 0.049 points. That is women are predicted to be slightly less stigmatizing towards the mentally ill. Additionally, districts is not a significant predictor of stigma ($B=0.003$, $SE=0.012$, $t=0.293$, $p=0.770$, VIF=1.003). That is piloting the district with the mental health reform is not significantly associated with a decrease in stigma.

Finally, table 6 shows the moderation model. It shows a significant main effect of social contact ($B=0.0855$, $SE=0.0167$, $t=5.1149$, $p<0.001$). This indicates having prior social contact with the mentally is significantly associated with a decrease in stigma and thereby a decrease in stigma. On the other hand, there is no significant interaction effect between types of districts and contact experiences. Hence, prior social contact with the mentally is not a moderator variable.

Table 2

Differences in the Community Attitudes Towards the Mentally Ill (CAMI) across social contact and age

Binomial factors	*N*	*Mean (SE)*	*t (df)*	*P-value*
Gender			-4.257 (2971)	<0.001***
Male	1255	3.32 (0.21)		
Female	1718	3.36 (0.33)		
Social contact			-5.322 (2971)	<0.001***
No	1849	3.31 (0.31)		
Yes	1124	3.38 (0.32)		

Note. *<.05. **p<.01. ***p<.001. P-value is calculated using independent t-test.

Table 3

Differences in the Community Attitudes Towards the Mentally Ill (CAMI) across age, employment status, educational level, and marital status

Sociodemographic factors	*N*	*Mean (SE)*	*F*	*df1*	*df2*	*P-value*
Age			0.648	3	2969	0.584
18-30	419	3.35 (0.30)				
31-45	612	3.35 (0.21)				
46-60	745	3.34 (0.35)				
61-96	1188	3.34 (0.31)				
Employment status			0.872	3	2969	0.455
Employed	1224	3.33 (0.33)				
Unemployed	571	3.35 (0.31)				
Student	135	3.37 (0.31)				
Retired	1043	3.35 (0.31)				
Educational level			10.813	3	2969	<0.001***
Primary school	588	3.29 (0.30)				
High school	634	3.32 (0.29)				
Practical apprenticeship	1215	3.36 (0.32)				
University education	563	3.39 (0.35)				
Marital status			1.943	4	2966	0.101

Married	1862	3.34 (0.31)
Single	403	3.32 (0.21)
Widowed	478	3.37 (0.35)
Divorced	183	3.36 (0.34))
Concubinage	45	3.41 (0.45)

Note. *<.05. **p<.01. ***p<.001. P-value is calculated using a one-way ANOVA test.

Table 4

One-way ANOVA contrast test: Educational levels

	Contrast	Value	SE	t	df	p-value
CAMI	1	-0.1349	0.02444	-5.520	2100.639	<0.001

Note. *<.05. **p<.01. ***p<.001. Contrast coefficients are based on the two lowest educational levels and the two highest educational levels: primary school=1, high school=1, practical apprenticeship=-1, and university education=-1.

Table 5

Simple regression analysis and adjusted model

	B	*SE*	*Standardized Coefficients Beta*	*t*	*p-value*	*VIF*
Constant	3.319	0.007		460.978	<0.001	
Social contact	0.064	0.012	0.097	5.322	<0.001	1.000
Constant	3.291	0.010		331.022	<0.001	
Social contact	0.063	0.012	0.096	5.282	<0.001	1.003
Gender	0.049	0.012	0.076	4.196	<0.001	1.000
District	0.003	0.012	0.005	0.293	0.770	1.003

Note. *<.05. **p<.01. ***p<.001. The Community Attitudes towards the Mentally Ill (CAMI) represents the outcome variable. Social contact and gender are the predictors.

Table 6

Moderation Analysis: Types of district and total social contact experience

	B	*SE*	*t*	*P*	*95% CI Lower*	*95% CI Upper*
Constant	3.31086	0.0106	310.7420	<0.001***	3.2877	3.3295
Districts	0.0204	0.0147	1.3816	0.1672	-0.0085	0.0492
Social contact	0.0855	0.0167	5.1149	<0.001***	0.0527	0.1183
Districts x Social contact	-0.0445	0.0240	-1.8540	0.0638	-0.0915	0.0026

Note. *<.05. **p<.01. ***p<.001. The Community Attitudes towards the Mentally Ill (CAMI) represents the outcome variable. Districts is the focal predictor, and Social contact t is the moderator variable.

III. Discussion

This study found significant differences in the level of stigma towards the mentally between gender and educational backgrounds regardless of district. Women on average had a slightly more positive attitude including less stigma towards people with mental illness compared to men. This is in accordance with previous studies indicating that women are more empathic, open-minded and showing less stigma towards people with mental illness (Ewalds-Kvist et al., 2012; Abi Doumit et al., 2019; Taylor & Dear, 1981). People with higher educational levels on average had slightly less stigma on average towards the mentally ill than people lower educational level. The result is consistent with Barke et al. (2010), showing that more educated people are less authoritarian and less socially restrictive as well as have more benevolent views towards the mentally ill than those with basic education.

Furthermore, previous studies have consistently demonstrated that contact with people with mental illness corresponds to less stigmatizing attitudes towards people with mental illness and more accepting attitudes (Couture & Penn, 2003). This study hypothesized that there is an association between social contact experiences and stigma and both the corrected model and the simple regression model tell us so. In other words, people with prior social contact with the mentally ill are shown to be less stigmatizing than those who do not have prior social contact. The result is aligned with previous study (Subramaniam et al., 2017). It is plausible that individuals who have contact with the mentally ill are more exposed to mental health issues and thus exhibit a greater level of understanding regarding mental health conditions. For this reason, this group may also demonstrate enhanced awareness and sensitivity towards stigmatization and discrimination faced by individuals with mental illness.

Moreover, this study hypothesized that there is a positive association between piloting the districts with mental health reform and stigma – thereby a decrease in stigmatization towards the mentally ill within the piloted districts. This study however, indicates that there is no significant relationship between piloting the districts with stigma. This study also suggests that social contact is not a moderator – there is no association between piloting the district on social contact with the

mentally ill. Piloting the districts in Moldova mainly focused on deinstitutionalization mental health care which includes providing the needs for community-based services in mental health and training for stigma prevention. Even though several internal reports have shown that people from the original piloted districts are less stigmatizing towards people with mental illness than people from non-pilot districts, our study does not provide supportive evidence. This may be because the existing mental health services are still challenged by unmet social, economic, and cultural environment needs as well as prevailing discrimination and stigmatization – causing the existing mental health services not operating optimally (Frasch et al., 2020).

III.I Strength and limitation

The study findings should be interpreted in light of certain limitations. Firstly, the nature of cross-sectional study in our study prevents us from identifying a definite cause for the association between social contact and stigma. In that respect, it is still challenging to determine whether the observed association is causal or if there are other factors influencing the relationship. Cross-sectional study also does not capture changes over time. This makes comparison with the previous study and understanding of the stigma towards the mentally ill progress in Moldova hard to be realized. These limitations are consequently affecting the mental health reform monitoring and evaluation. Providing insights and recommendations on the mental health reform in Moldova based on this study's findings are difficult to do.

Secondly, the Community Attitudes towards the Mentally Ill (CAMI) was originally developed by Taylor et al. (1979) and has not been adapted to the Moldovan population. Therefore, cultural adjustment is needed. Having said that, recent literature review has shown that CAMI produces relatively low reliability scores (Sanabria-Mazo et al., 2013). This shows that the instrument is in need of further assessment such as a refinement to create a uniform set of items that matches cultural aspects and contextualization of stigma expression.

Even so, the study findings still offer insights for policy makers and service planners in Moldova to improve the ongoing mental health reform. Lower educational levels correlate with higher stigma, while social contact experiences with the mentally ill is associated with lower stigma level. Therefore, reform implementation should address population needs, including quality education, social cohesion, and poverty reduction. Programs aimed at stigma prevention and focused on social contact can help change societal behavior. Strategies may involve intentional group-based contact, fostering support networks and enhancing self-esteem through culturally contextualized practical and emotional support– as cultural acceptance is essential for anti-stigma campaigns (Adu et al., 2022).

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Appendix A

Ethical Approval: Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

MINISTERUL SĂNĂTĂȚII, MUNCII ȘI PROTECȚIEI SOCIALE AL REPUBLICII MOLDOVA
UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE „NICOLAE TESTEMIȚANU" DIN REPUBLICA MOLDOVA

MINISTRY OF HEALTH, LABOUR AND SOCIAL PROTECTION OF THE REPUBLIC OF MOLDOVA
NICOLAE TESTEMITANU STATE UNIVERSITY OF MEDICINE AND PHARMACY OF THE REPUBLIC OF MOLDOVA

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_____ nr. _____

la nr. _____ din _____

Aviz favorabil al
Comitetului de Etică a Cercetării

La Proiectul ştiinţific Internaţional ***„Atitudini faţă de sănătatea mintală în Moldova",*** realizat de investigatorul principal Chihai Jana – doctor în ştiinţe medicale, conferenţiar universitar.

Comitetul de Etică a Cercetării USMF „Nicolae Testemiţanu" , examinând la şedinţa din 05 noiembrie 2018 următoarele documente:

1. Forma de solicitare pentru evaluare etică a cercetării.
2. Protocolul proiectului.
3. Acordul informat.
4. Fişa de informare a participantului.
5. Chestionarul studiului.
6. CV-ul investigatorului.

A decis că proiectul de cercetare ***„Atitudini faţă de sănătatea mintală în Moldova",*** corespunde exigenţelor etice.

Lista nominală a membrilor CEC prezenţi în şedinţă: Vovc Victor, Parii Sergiu, Groppa Liliana, Caproş Natalia, Uncuţa Diana, Cobeţ Valeriu, Casian Dumitru, Ţurcan Svetlana, Hadjiu Svetlana, Chesov Ion, Guţu Luminiţa.

Preşedinte
al Comitetului de Etică a Cercetării Vovc Victor

Appendix B

Informed Agreement

Comitetul de Etică a Cercetării

Aprobat la ședința din _____

ACORDUL INFORMAT

(Formular de informare)

Data: 21-09-2017 8 **Versiunea: V1 Interviuri**

1. **Titlul studiului *"Atitudini față de sănătatea mintală în Moldova"***

Stimată Doamnă/Domn,

Vă invităm să participați la studiul nostru despre atitudinile față de sănătatea mintală în Moldova. Răspunsurile Dvs. la întrebările de mai jos ne vor ajuta să definim atitudinile publicului referitoare la sănătatea mintală în această țară, să înțelegem mai bine situația persoanelor cu probleme de sănătate mintală din Moldova și să învățăm cum am putea elabora mesaje publice despre sănătatea mintală în cadrul proiectului moldo-elvețian MENSANA – "Suport pentru reforma serviciilor de sănătate mintală în Moldova". Vă rugăm să răspundeți la întrebări cât mai onest posibil. Toate răspunsurile Dvs. vor fi strict confidențiale și nu va fi posibilă realizarea unei conexiuni între răspunsuri și informațiile Dvs. personale. Răspunsurile pe care le veți acorda nu vor fi văzute sau împărtășite altor persoane, în afară de cercetătorii principali din cadrul echipei MENSANA.

2. Care este scopul studiului?

Scopul studiului este: Percepția atitudinii populației asupra fenomenului de stigmă şi discriminare faţă de sănătatea mintală şi identificarea factoriilor determinanți ai acestei atitudini".

Acest studiu face parte dintr-o evaluare mai amplă a proiectului 'MenSana' (Proiectul "Suport pentru reforma serviciilor de sănătate mintală în Moldova"). Studiul de evaluare are scopul de a oferi informații despre factorii facilitatori și obstacolele pentru implementarea proiectului. Concluziile studiului vor fi utilizate pentru a consolida în continuare serviciile de sănătate mintală în Moldova.

3. De ce am fost ales?

Ați fost invitat/ă să participați, deoarece opiniile dvs. sunt de o importanță vitală pentru a înțelege mai bine necesitatea acțiunilor care mai trebuie întreprinse pentru acceptarea persoanelor cu probleme de sănăbtate mintală și reformarea serviciilor de sănătate mintală în Moldova.

4. **Obligativitatea participării/** ***Trebuie neapărat să particip?***

Participarea este totalmente voluntară. Alegerea vă aparține - de a participa sau nu. Dacă acceptați să participați, noi am dori să vă rugăm să semnați un formular de acord. Sunteți liber/ă de a vă retrage din cercetare în orice moment. Refuzul de a participa la studiu sau retragerea de la participare nu va afecta situația dvs. profesională, tratamentul dvs. sau practica dvs. clinică. Puteți informa cercetătorul sau orice membru al echipei proiectului, dacă nu doriți ca datele pe care le-ați furnizat deja să fie utilizate pentru analiză ulterioară.

5. **Desfăşurarea studiului /** ***Ce se întîmplă, dacă particip?***

Dacă ați acceptat de a participa la studiu și ați semnat formularul de acord informat, va începe interviul, care va dura 20 minute. Pe durata interviului, noi vă vom întreba despre opiniile și experiențele dvs. referitoare la problemele de sănătate mintală și atitudinile față de această topică. După interviu, veți primi un sumar a interviului pentru a valida dacă acesta reflectă corect răspunsurile dvs.

6. Cheltuieli şi recompense/ Voi suporta cheltuieli ca rezultat al participării la studiu?

În studiu nu vor fi recompense și careva plăți.

7. Ce trebuie să fac?

În cadrul interviului, vă vom ruga să răspundeți la întrebări și apoi să verificați dacă sumarul pe care urmează să vi-l expediem reflectă corect cele spuse de dvs.

8. Care sunt posibilele dezavantaje și riscuri ale participării mele?

Acest studiu nu provoacă prejudicii. Astfel, este improbabil de a suporta vreo repercusiune negativă în urma participării la acest studiu. Cu toate acestea, este posibil un anumit disconfort legat de răspunsul la întrebări. Dacă o anumită întrebare sau procedură vă provoacă disconfort, vă puteți retrage din participarea la studiu în orice moment, fără nici o consecință sau penalizare.

9. **Compensaţii în caz de prejudiciu/***Ce se întîmplă, în caz dacă apar probleme?*

Orice plîngere referitoare la modul în care ați fost tratat pe parcursul studiului sau orice disconfort sau stres posibil poate fi gestionat de unul din membrii echipei proiectului nostru. Vorbiți, vă rog, cu cercetătorii, care vor face tot ce e mai bine pentru a răspunde la întrebările și preocupările dvs. Dacă rămîneți nemulțumit/ă și doriți să depuneți în mod formal o plîngere, puteți face acest lucru prin intermediul informației de contact oferite mai jos.

10. Care sunt posibilele beneficii ale participării mele?

Participarea la acest studiu nu vă poate aduce beneficii directe, tangibile pe termen scurt. Totodată, există beneficii potențiale pentru viitorul dvs., a persoanelor cu probleme de sănătate mintală și al altor specialiști experimentați din domeniul sănătății, care se vor manifesta prin îmbunătățirea serviciilor de sănătate mintală în Moldova.

11. Ce se întîmplă, daca apar noi informații relevante?

Veți fi invitați la discuții privind rezultatele anonimizate ale interviurilor în cadrul unui focus-grup cu participarea altor manageri de servicii medicale. Plus la aceasta, rezultatele relevante ale studiului vor fi distribuite în cadrul unui raport sumar.

12. Confidențialitatea/Participarea mea va fi confidențială?

Da. Noi respectăm regulile etice și juridice. Toată informația va fi prelucrată în mod confidențial și nu va fi distribuită fără consimțămîntul dvs. Datele vor fi colectate în mod anonim, deoarece noi nu solicităm date personale, așa ca nume, data nașterii sau informații

despre diagnoză și tratament. Totodată, combinarea informației privind vîrsta, profesia și raionul în care lucrați ar putea, în unele cazuri, duce la trasabilitatea unei persoane. Din aceste considerente, toate datele brute, din înregistrări, pe hîrtie sau electronice, vor fi colectate, prelucrate și stocate în mod sigur pentru a respecta confidențialitatea. Drive-ul și dosarul în care va fi stocată informația vor putea fi accesate doar de către cercetătorii desemnați. Chestionarul online va fi, de-asemenea, protejat cu parolă și accesibil doar pentru cercetătorii desemnați. Informația în format pe hîrtie și formularele de acord informat vor fi stocate într-o cutie plasată într-o sală închisă de la oficiul Trimbos Moldova din Chisinau. Conform prevederilor legislației, toate materialele studiului vor fi distruse peste trei ani. În caz de spargerea datelor, fapt care este foarte improbabil, veți fi informat/ă cu promptitudine și vor fi întreprinse măsuri pentru a limita încălcarea.

13. Terminarea studiului/Ce se va întîmpla cu rezultatele studiului?

Datele anonimizate pe care le veți furniza pot fi utilizate în viitor pentru analiză în vederea utilizării în prezentări, rapoarte anuale sau publicații academice.

14. Cine organizează și finanțează studiul?

Proiectul 'MenSana' este mandatat de către Agenția Elvețiană pentru Cooperare și Dezvoltare (SDC) și implementat de Institutul Trimbos (Institutul olandez pentru Sănătate Mintală și Adicții) din Olanda, reprezentat de unitatea sa locală de implementare a proiectului, Trimbos Moldova.

15. Cine a aprobat studiul?

Acest studiu a fost evaluat de către un comitet independent pentru analiză etică din Moldova, Comitetul de Etică al USMF „N.Testemiţanu".

16. Informație de contact:

Pentru informații sau preocupări referitoare la acest studiu, contactați, vă rog:

Jana Chihai

USMF Nicolae Testemițanu

Str. Costiujeni 3

+37360444664

Pentru informații generale despre Proiectul ‘MenSana’, contactați, vă rog:

Victoria Condrat

Trimbos Moldova

Strada Universității 26V, Chișinău, Moldova

+37322996181

victoria.condrat@trimbos.md

Appendix C

Utrecht University Ethical Approval

P.O. Box 80140, 3508 TC Utrecht The Board of the Faculty of Social and Behavioural Sciences Utrecht University P.O. Box 80.140 3508 TC Utrecht		**Faculty of Social and Behavioural Sciences** Faculty Support Office Ethics Committee **Visiting Address** Padualaan 14 3584 CH Utrecht
Our Description	23-0358	
Telephone	030 253 46 33	
E-mail	FETC-fsw@uu.nl	
Date	17 February 2023	
Subject	Ethical approval	

ETHICAL APPROVAL

Study: Open Arms: Shifting mental health care and services in Moldova closer to the community for people with mental health problems in Moldova

Principal investigator: M. Muhammad Mikail Hasan

Supervisor: Jeroen van Baar

The study is approved by the Ethical Review Board of the Faculty of Social and Behavioural Sciences of Utrecht University. The approval is based on the documents sent by the researchers as requested in the form of the Ethics committee and filed under number 23-0358. The approval is valid through 08 July 2023. The approval of the Ethical Review Board concerns ethical aspects, as well as data management and privacy issues (including the GDPR). It should be noticed that any changes in the research design oblige a renewed review by the Ethical Review Board.

Yours sincerely,

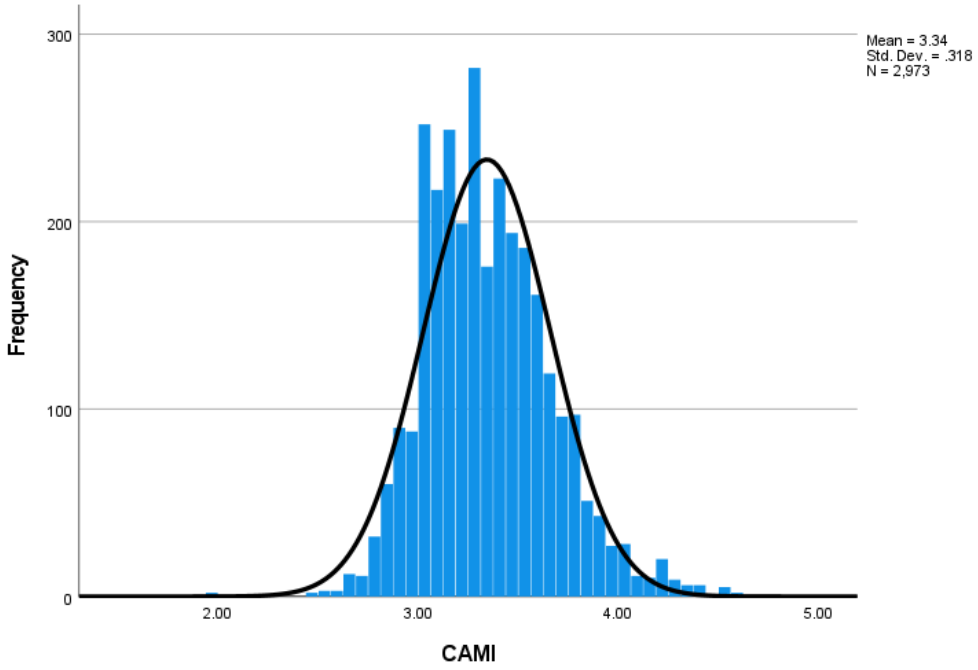
Peter van der Heijden, Ph.D.
Chair
This is an automatically generated document, therefore it is not signed

Appendix D

Statistical Assumptions

One-way ANOVA assumptions

I. Assumption of Normality: Before running the analysis, The Community Attitudes towards the Mentally Ill (CAMI) will be visualized to check the normality using skewness and kurtosis. If the z-value of skewness and kurtosis is below 3.29, the data are normally distributed. However, if the normality assumption is violated, omnibus ANOVA is still considered fairly robust. The test will be done by making a histogram and probability plot (P-P plot) of the dependent variable.



II. Assumption of homogeneity of variance

AGE

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
CAMI	Based on Mean	6.855	3	2969	.000
	Based on Median	5.376	3	2969	.001
	Based on Median and with adjusted df	5.376	3	2874.973	.001
	Based on trimmed mean	6.500	3	2969	.000

- Based on the Levene test statistics, the assumption of the homogeneity of variance is violated. This means that there is a heterogeneity of variances because the Levene Statistics is statistically significant. Because the result is significant, the Welch F-test is better to be used.

Robust Tests of Equality of Means

CAMI

	Statistic[a]	df1	df2	Sig.
Welch	.690	3	1305.364	.558

a. Asymptotically F distributed.

- Based on the Welch test, there is a homogeneity of variances (Statistic=0.690, df1=3, df2=1305.364, p=0.558). This indicates that there is no significant evidence of group differences in the dependent variable based on the robust test.

Educational level

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
CAMI	Based on Mean	5.262	3	2969	.001
	Based on Median	5.223	3	2969	.001
	Based on Median and with adjusted df	5.223	3	2883.659	.001
	Based on trimmed mean	5.150	3	2969	.001

- Based on the Levene test statistics, the assumption of the homogeneity of variance is violated. This means that there is a heterogeneity of variances because the Levene Statistics is statistically significant. Because the result is significant, the Welch F-test is better to be used.

Robust Tests of Equality of Means

CAMI

	Statistic[a]	df1	df2	Sig.
Welch	10.727	3	1387.045	.000
Brown-Forsythe	10.855	3	2390.208	.000

a. Asymptotically F distributed.

- The Welch F-test here is better to use. The test indicates that there is a significant difference between educational levels on CAMI.

Employment status

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
CAMI	Based on Mean	.731	3	2969	.533
	Based on Median	.784	3	2969	.503
	Based on Median and with adjusted df	.784	3	2954.490	.503
	Based on trimmed mean	.767	3	2969	.512

The assumption of homogeneity of variance is not violated.

Marital status

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
CAMI	Based on Mean	5.650	4	2966	.000
	Based on Median	4.199	4	2966	.002
	Based on Median and with adjusted df	4.199	4	2804.369	.002
	Based on trimmed mean	5.312	4	2966	.000

- The assumption of homogeneity of variances is violated. In this case, the Welch test is more appropriate to use.

Robust Tests of Equality of Means

CAMI

	Statistic[a]	df1	df2	Sig.
Welch	1.555	4	260.196	.187
Brown-Forsythe	1.516	4	276.855	.198

a. Asymptotically F distributed.

- This indicates that there is no significant evidence of group differences in the dependent variable based on the robust test.

<u>Independent t-test assumption</u>

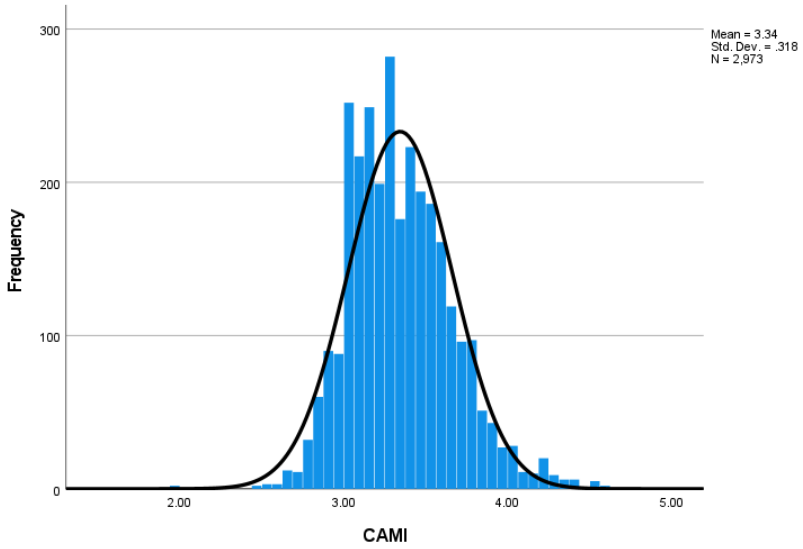
Gender

I. Assumption of independent observation: the assumption is met. By organizing the data into separate groups(male & female) we see that there is no participants that are dependent from each other.

Group Statistics

	What is your gender?	N	Mean	Std. Deviation	Std. Error Mean
CAMI	Male	1255	3.3143	.29805	.00841
	Female	1718	3.3645	.33019	.00797

II. Normally distributed data: the assumption of normal distribution is met.



III. Homogeneity of variance assumption

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CAMI	Equal variances assumed	8.755	.003	-4.257	2971	.000	-.05011	.01177	-.07319	-.02703
	Equal variances not assumed			-4.325	2842.067	.000	-.05011	.01159	-.07283	-.02739

Based on the Levene's test for equality of variances, the assumption of homogeneity of variance is violated. This indicates that there is a heterogeneity of variance. We can assume that there is a difference in both genders on CAMI.

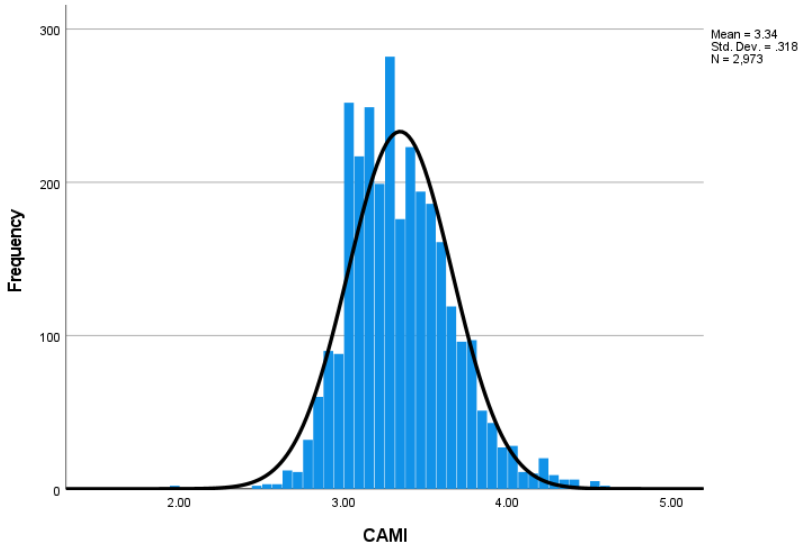
Social contact

Group Statistics

	Have, or have had contact with people with mental illness	N	Mean	Std. Deviation	Std. Error Mean
CAMI	No	1849	3.3192	.30851	.00717
	Yes	1124	3.3829	.32918	.00982

I. Assumption of independent observation: the assumption is met. Between the two groups, they are not dependent on each other.

II. Assumption of normal distribution is met



III. Assumption of homogeneity of variance is not violated.

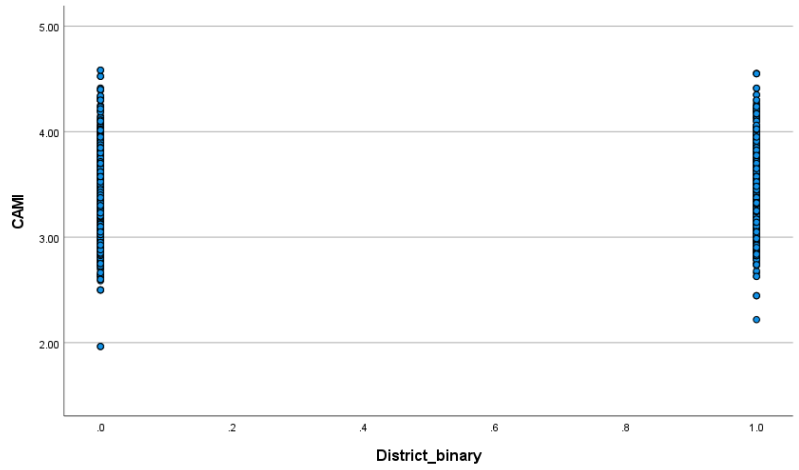
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CAMI	Equal variances assumed	2.872	.090	-5.322	2971	.000	-.06371	.01197	-.08718	-.04024
	Equal variances not assumed			-5.239	2252.235	.000	-.06371	.01216	-.08756	-.03986

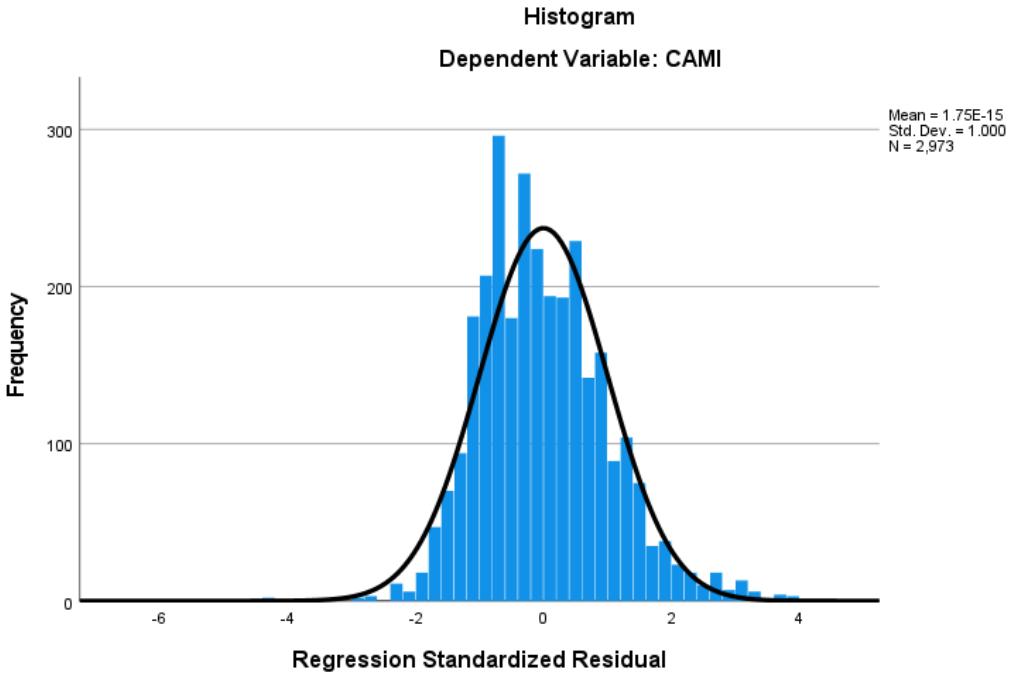
Moderation test assumption

- Independent variable: Types of district
- Dependent variable: Community Attitudes towards the Mentally Ill (CAMI)
- Moderator: Social contact

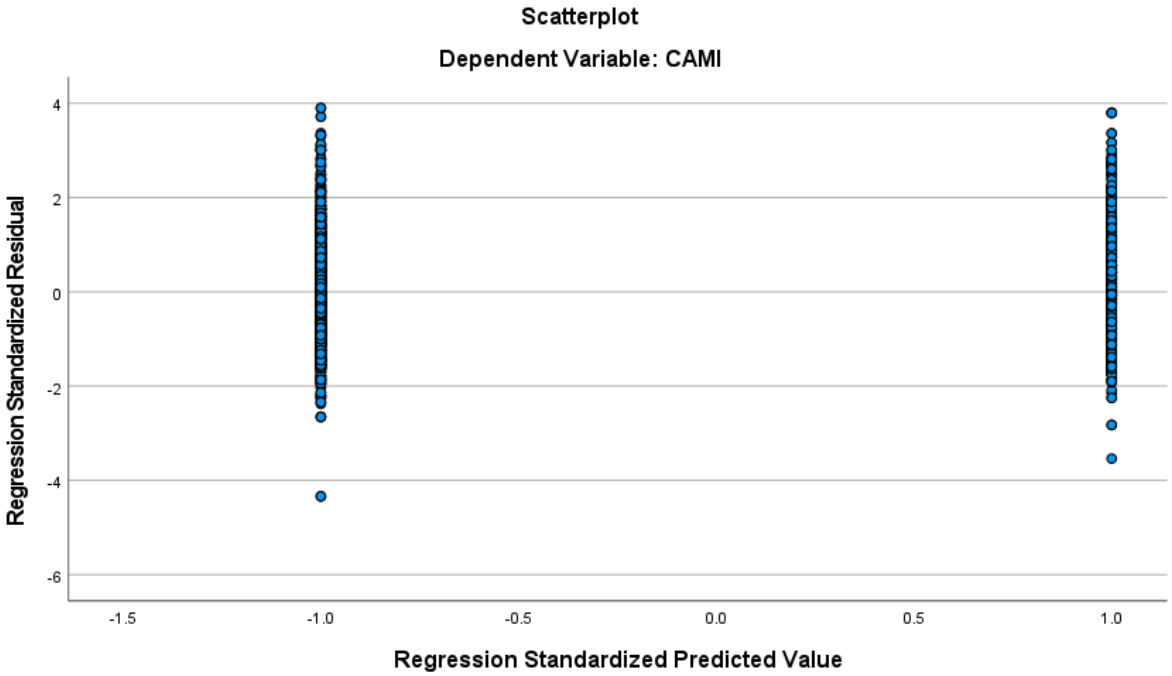
I. Linear relationship assumption between district and CAMI is not met.



II. Assumption of normality of residuals and homoscedasticity



The distribution of the residuals shows some deviations from normality, the distribution may be a bit skewed. Because the independent variable is dichotomous the assumption of homoscedasticity is not applicable. Because in this study the predictor is a dichotomous variable, centering is not required.



Appendix E

Survey Questions

Trimbos Moldova

Sănătate mintală accesibilă în comunitate

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Attitudes towards mental health in Moldova

- Codul Institutiei:
- Unitatea Administrativteritorială:
- IMSP persoană juridică:
- Institu Die medicală fără personalita te juridică:
- Subdiviziune a institutiei médicale cu/fără personalitate Juridică:
- Localitatea deservită:

Citizens of the Republic of Moldova

Survey No:

Date:

Introduction

Dear Madam/Sir,

We kindly invite you to partake in our study about attitudes towards mental health in Moldova. The answers you provide to the questions will help us to get an insight in the publicly held attitudes around mental health in this country, to further understand the situation of people with mental health issues in Moldova, and to learn how we can develop public messages about mental health in the MENSANA project. Please answer the questions as honestly as you can. All your responses will be kept strictly confidential and no responses will be linked to your personal information. The answers you provide will not be seen or shared with anyone else beyond the lead researchers in the MENSANA team.

What are the implications of participating in this survey?
For more information on the implications that participating in this survey might have for you, and further information about the study please see attached the study information sheet explaining more about the purpose and the conduct of the study. Note that all answers you provide will be treated confidentially, nor will your answers be linked to any information that would identify you personally. Taking this survey is unlikely to have any consequences for you.

How to fill in this form?
The following questionnaire contains statements and questions about mental health and people living with mental health issues. Questions can be responded to with *yes* or *no* (or *I don't know* if you are not sure what the answer is*),* while the statements require you to indicate to what extend you agree with each of them. Please respond to each of the items as accurately as possible. It is important that you respond in a way that truly represents your opinion, not taking other people's opinions into account. We are interested in your attitude just as it is. There is no right or wrong answer, and the way you respond will have any consequences for you.

Do you have any questions?
If you have questions or if you need assistance in filling in this questionnaire, the person who gave you this questionnaire can help you. You can also contact the administrators of this survey directly: The

researchers in charge, Laura Shields-Zeeman and Jan Chihai. Their contact details you can find on the information sheet handed to you together with this survey.

Experience

To begin with, we would like to know something about your personal experience with people with mental illness, and how close you would be willing to be to someone suffering from mental illness in the future. Please select one answer and respond to all questions or statements.

		Yes	No	I don't know
1	Are you currently living with, or have you ever lived with, someone with a mental health problem?	☐	☐	☐
2	Are you currently working with, or have you ever worked with, someone with a mental health problem?	☐	☐	☐
4	Do you currently have, or have you ever had, a neighbor with a mental health problem?	☐	☐	☐
5	Do you currently have, or have you ever had, a close friend with a mental health problem?	☐	☐	☐
6	Do you currently have, or have you ever had a mental health problem?	☐	☐	☐

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	In the future, I would be willing to live with someone with a mental health problem.	☐	☐	☐	☐	☐

2	In the future, I would be willing to work with someone with a mental health problem.	☐	☐	☐	☐	☐
3	In the future, I would be willing to live nearby to someone with a mental health problem.	☐	☐	☐	☐	☐
4	In the future, I would be willing to continue a relationship with a friend who developed a mental health problem.	☐	☐	☐	☐	☐
5	If I had a mental illness, I would seek help from a mental health professional.	☐	☐	☐	☐	☐
6	If I had a mental illness, I would tell my family.	☐	☐	☐	☐	☐
7	If I had a mental illness, I would tell my close friends.	☐	☐	☐	☐	☐
8	If I had a mental illness, I would tell my employer.	☐	☐	☐	☐	☐

Attitude

With the next part of this questionnaire we would like to understand your general attitude towards the mentally ill. Please indicate to what extend you agree or disagree with the following statements. Please select one answer and respond to all statements.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	As soon as a person shows signs of mental disturbance, he or she should be hospitalized.	☐	☐	☐	☐	☐
2	More tax money should be spent on the care and treatment of the mentally ill.	☐	☐	☐	☐	☐
3	The mentally ill should be isolated from the rest of the community	☐	☐	☐	☐	☐
4	The best therapy for many mental patients is to be part of a normal community.	☐	☐	☐	☐	☐
5	Mental illness is an illness like any other.	☐	☐	☐	☐	☐
6	The mentally ill are a burden on society.	☐	☐	☐	☐	☐

7	The mentally ill are far less of a danger than most people suppose.	☐	☐	☐	☐	☐
8	Locating mental health facilities in a residential area downgrades the neighbourhood.	☐	☐	☐	☐	☐
9	There is something about the mentally ill that makes it easy to tell them from normal people.	☐	☐	☐	☐	☐
10	The mentally ill have for too long been the subject of ridicule.	☐	☐	☐	☐	☐
11	A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.	☐	☐	☐	☐	☐
12	A man would be foolish to marry a woman who has suffered from mental illness, even though she seems fully recovered.	☐	☐	☐	☐	☐
13	As far as possible mental health services should be provided through community-based facilities.	☐	☐	☐	☐	☐
14	Less emphasis should be placed on protecting the public from the mentally ill.	☐	☐	☐	☐	☐
15	Increased spending on mental health services is a waste of tax dollars.	☐	☐	☐	☐	☐
16	No one has the right to exclude the mentally ill from their neighbourhood.	☐	☐	☐	☐	☐
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
17	Having mental patients living within residential neighbourhoods might be good therapy, but the risks to residents are too great.	☐	☐	☐	☐	☐
18	Mental patients need the same kind of control and discipline as a young child.	☐	☐	☐	☐	☐
19	We need to adopt a far more tolerant attitude toward the mentally ill in our society.	☐	☐	☐	☐	☐
20	I would not want to live next door to someone who has been mentally ill.	☐	☐	☐	☐	☐
21	Residents should accept the location of mental health facilities in their neighbourhood to serve the needs of the local community.	☐	☐	☐	☐	☐

22	The mentally ill should not be treated as outcasts of society.	☐	☐	☐	☐	☐
23	There are sufficient existing services for the mentally ill.	☐	☐	☐	☐	☐
24	Mental patients should be encouraged to assume the responsibilities of normal life.	☐	☐	☐	☐	☐
25	Local residents have good reason to resist the location of mental health services in their neighbourhood.	☐	☐	☐	☐	☐
26	The best way to handle the mentally ill is to keep them behind locked doors.	☐	☐	☐	☐	☐
27	Our mental hospitals seem more like prisons than like places where the mentally ill can be cared for.	☐	☐	☐	☐	☐
28	Anyone with a history of mental problems should be excluded from taking public office.	☐	☐	☐	☐	☐
29	Locating mental health services in residential neighbourhoods does not endanger local residents.	☐	☐	☐	☐	☐
30	Mental hospitals are an outdated means of treating the mentally ill.	☐	☐	☐	☐	☐
31	The mentally ill do not deserve our sympathy.	☐	☐	☐	☐	☐
32	The mentally ill should not be denied their individual rights.	☐	☐	☐	☐	☐

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
33	Mental health facilities should be kept out of residential neighbourhoods.	☐	☐	☐	☐	☐
34	One of the main causes of mental illness is a lack of self-discipline and will power.	☐	☐	☐	☐	☐
35	We have the responsibility to provide the best possible care for the mentally ill.	☐	☐	☐	☐	☐
36	The mentally ill should not be given any responsibility.	☐	☐	☐	☐	☐

37	Residents have nothing to fear from people coming into their neighbourhood to obtain mental health services.	☐	☐	☐	☐	☐
38	Virtually anyone can become mentally ill.	☐	☐	☐	☐	☐
39	It is best to avoid anyone who has mental problems.	☐	☐	☐	☐	☐
40	Most women who were once patients in a mental hospital can be trusted as baby sitters.	☐	☐	☐	☐	☐
41	It is frightening to think of people with mental problems living in residential neighbourhoods.	☐	☐	☐	☐	☐

Knowledge

In the third part of this survey, we would like to learn more about the knowledge you have regarding the mental disease in general. Please select one answer and respond to all questions or statements.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	Most people with mental health problems want to have paid employment.	☐	☐	☐	☐	☐
2	If a friend had a mental health problem, I know what advice to give them to get professional help.	☐	☐	☐	☐	☐
3	Medication can be an effective treatment for people with mental health problems.	☐	☐	☐	☐	☐
4	Psychotherapy (eg. talking therapy or counselling) can be an effective treatment for people with mental health problems.	☐	☐	☐	☐	☐
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
5	People with severe mental health problems can fully recover.	☐	☐	☐	☐	☐
6	Most people with mental health problems go to a healthcare professional to get help.	☐	☐	☐	☐	☐

Please indicate for the following conditions whether you think it is a mental disorder, or not. If you do not know, please indicate *I don't know*. Please select one answer and respond to all questions or statements.

		Yes	No	I don't know
1	Mary feels very sad most of the days and has trouble starting any activity. [Depression]	☐	☐	☐
2	Johnny has an exam in two hours and feels agitated. He woke up a few times last night. [Stress]	☐	☐	☐
3	Paul thinks that he is being followed, even though he is not, and that voices on the radio are speaking to him directly to give him an important job. [Schizophrenia]	☐	☐	☐
4	Last month, Anna slept very little, partied a lot and spent all her money on a new hobby. Now, she does not want to come out of bed and bathe herself. [Bipolar disorder (manic-depression)]	☐	☐	☐
5	Bob has trouble controlling his use of alcohol, which is costing him more and more money and has caused him to lose his job. He is hiding his behavior from friends. [Substance use disorder]	☐	☐	☐
6	Betty lost her husband two weeks ago. She feels very sad and has trouble sleeping and eating. [Grief]	☐	☐	☐

Personal information

Finally, we would like to know learn more about your background. Please fill in all questions.

	Female	Male	Other
What is your gender?	☐	☐	☐

What is your age in years? _____

	Primary school	High school	Practical apprenticeship	University education	Other (please specify)
What is the highest level of education you have completed?	☐	☐	☐	☐	_____

	Employed (fulltime)	Employed (part-time)	Unemployed	Student	Retired
What is your employment situation?	☐	☐	☐	☐	☐

Marital status	Married ☐	Single ☐	Widowed ☐	Divorced ☐

Where do you live?	Municipality _____	Postal Code _____	Raion _____

Is there anything (else) you would like to let us know?

Thank you for taking the time to complete this questionnaire. Please check once more whether you have responded to all questions and statements and complete those that you might have missed. Then, hand this questionnaire and one copy of the signed consent form back to data collector, please. For more information about the MENSANA project visit our website at www.trimbos.md.

Appendix F

Statistical Analysis Syntax

I. Recoding the subscales: Authoritarianism, social restrictiveness, benevolence and mental health ideology. Each subscale: authoritarianism, social restrictiveness, benevolence, and mental health ideology contains 10 items. 5 items are worded positively and 5 items are coded negatively. In order to measure each of the subscale, recording the items needs to be done so that it predicts the same measurement. In this study the recording is done for the negatively worded questions. So, higher scores in the four subscales indicate lower stigma (Sanabria-mazo, 2023).

Authoritarianism

```
RECODE q3_34_discipline_willpower_AUTHO q3_26_locked_doors_AUTHO q3_9_easytell_AUTHO
  q3_1_signs_AUTHO q3_18_control_discipline_AUTHO (1=5) (2=4) (3=3) (4=2) (5=1) INTO
  q3_34_discipline_willpower_AUTHO_rec q3_26_lcoked_doors_AUTHO_rec q3_easytell_AUTHO_rec
  q3_1_signs_AUTHO_rec q3_18_control_disciplin_AUTHO.
EXECUTE.
```

Social restrictiveness

```
RECODE q3_36_responsibility_SOCRES q3_3_isolated_SOCRES q3_11_woman_foolish_SOCRES
  q3_20_livenextdoor_SOCRES q3_28_exclude_office_SOCRES (1=5) (2=4) (3=3) (4=2) (5=1) INTO
  q3_responsibility_SOCRES_rec q3_3_isolated_SOCRES_rec q3_11_woman_foolish_SOCRES_rec
  q3_20_livenextdoor_SOCRES_rec q3_28_exclude_office_SOCRES_rec.
EXECUTE.
```

Benevolence

```
RECODE q3_31_sympathy_BENEV q3_6_burden_BENEV q3_15_spending_BENEV q3_23_sufficient_services_BENEV
  q3_39_avoid_BENEV (1=5) (2=4) (3=3) (4=2) (5=1) INTO q3_31_sympathy_BENEV_rec q3_6_burden_BENEV_rec
  q3_15_spending_BENEV_rec q3_23_sufficient_services_BENEV_rec q3_39_avoid_BENEV_rec.
EXECUTE.
```

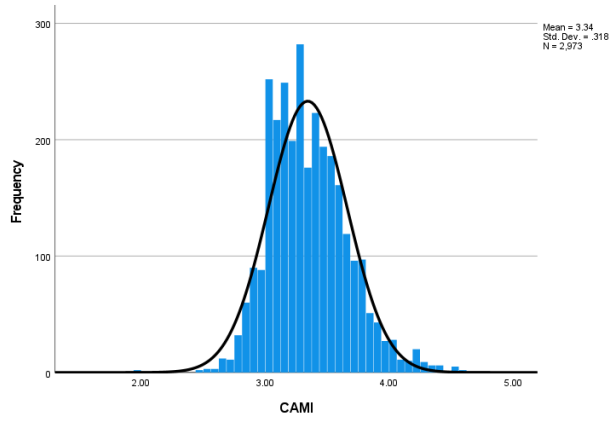
Mental health ideology

```
RECODE q3_33_facilities_keptout_IDEO q3_25_resist_IDEO q3_17_good_therapy_IDEO
  q3_41_firghtening_IDEO q3_8_facilities_downgrades_IDEO (1=5) (2=4) (3=3) (4=2) (5=1) INTO
  q3_33_facilities_keptout_IDEO_rec q3_25_resist_IDEO_rec q3_17_good_therapy_IDEO_rec
  q3_41_frightening_IDEO_rec q3_8_facilities_downgrades_IDEO_rec.
EXECUTE.
```

II. Overall Community Attitudes towards the Mentally Ill (CAMI) score

Overall CAMI framework

```
COMPUTE CAMI=MEAN(AUTHORITARIANISM, SOCIAL_RESTRICTIVENESS, BENEVOLENCE, IDEOLOGY).
EXECUTE.
```



III. Differences in CAMI score in demographic variables based on districts

a. AGE

```
UNIANOVA CAMI BY age_category DISTR
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=age_category DISTR age_category*DISTR.
```

b. Gender

```
UNIANOVA CAMI BY gender_rec DISTR
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=gender_rec DISTR gender_rec*DISTR.
```

c. Employment

```
UNIANOVA CAMI BY employment_rec DISTR
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=employment_rec DISTR employment_rec*DISTR.
```

d. Educational level

```
UNIANOVA CAMI BY Level_educ DISTR
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=Level_educ DISTR Level_educ*DISTR.
```

e. Marital status

```
UNIANOVA CAMI BY Mariage DISTR
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /PRINT DESCRIPTIVE
  /CRITERIA=ALPHA(.05)
  /DESIGN=Mariage DISTR Mariage*DISTR.
```

IV. Analysis of variances (One-way ANOVA)

a. AGE

```
ONEWAY CAMI BY age_category
  /STATISTICS DESCRIPTIVES HOMOGENEITY WELCH
  /PLOT MEANS
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95).
```

b. Employment status

```
ONEWAY CAMI BY employment_rec
  /STATISTICS DESCRIPTIVES HOMOGENEITY BROWNFORSYTHE WELCH
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95).
```

c. Educational level

```
ONEWAY CAMI BY Level_educ
  /CONTRAST=1 1 -1 -1
  /STATISTICS DESCRIPTIVES HOMOGENEITY BROWNFORSYTHE WELCH
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95).
```

d. Marital status

```
ONEWAY CAMI BY Mariage
  /STATISTICS DESCRIPTIVES HOMOGENEITY BROWNFORSYTHE WELCH
  /MISSING ANALYSIS
  /CRITERIA=CILEVEL(0.95).
```

V. Independent t-test

a. Gender

```
T-TEST GROUPS=gender_rec(0 1)
  /MISSING=ANALYSIS
  /VARIABLES=CAMI
  /ES DISPLAY(TRUE)
  /CRITERIA=CI(.95).
```

b. Social contact

```
T-TEST GROUPS=CONTACT(0 1)
 /MISSING=ANALYSIS
 /VARIABLES=CAMI
 /ES DISPLAY(TRUE)
 /CRITERIA=CI(.95).
```

VI. Regression

```
REGRESSION
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT CAMI
 /METHOD=ENTER CONTACT
 /METHOD=ENTER CONTACT gender_rec DISTR.
```

VII. Moderation analysis

```
Run MATRIX procedure:

Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 1
    Y  : CAMI
    X  : DISTR
    W  : CONTACT

Sample
Size:  2973

**************************************************************************
OUTCOME VARIABLE:
 CAMI

Model Summary
R       R-sq        MSE          F        df1        df2          p
.1031   .0106      .1001    10.6246     3.0000  2969.0000   .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     3.3086      .0106   310.7320      .0000     3.2877     3.3295
DISTR         .0204      .0147     1.3816      .1672     -.0085      .0492
CONTACT       .0855      .0167     5.1149      .0000      .0527      .1183
```

```
Int_1        -.0445      .0240    -1.8540      .0638     -.0915      .0026

Product terms key:
 Int_1    :        DISTR    x        CONTACT

Test(s) of highest order unconditional interaction(s):
       R2-chng          F        df1        df2          p
X*W      .0011     3.4373     1.0000  2969.0000      .0638
----------
    Focal predict: DISTR    (X)
          Mod var: CONTACT  (W)

Conditional effects of the focal predictor at values of the moderator(s):

    CONTACT     Effect         se          t          p       LLCI       ULCI
      .0000      .0204      .0147     1.3816      .1672     -.0085      .0492
     1.0000     -.0241      .0189    -1.2740      .2028     -.0612      .0130

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

------ END MATRIX -----
```