

Section 2: English Abstract

Full title of research project

Ethnic differences in sources of mental health information and their impact on mental health literacy among older adults in Israel

Investigators: full name and affiliations

Prof. Ora Nakash, School of Psychology, Interdisciplinary Center (IDC), Herzliya, Israel
 Dr. Tsahi Hayat, School of Communication, Interdisciplinary Center (IDC), Herzliya, Israel
 Dr. Sarah Abu- Kaf, Department of Multidisciplinary Studies, Ben-Gurion University of the Negev, Israel
 Prof. Itzhak Levav, Department of Community Mental Health, Faculty of Social Welfare & Health Sciences, Haifa University, Haifa, Israel

Key Words

Mental Health Literacy, Ethnic differences, Service Utilization, Social Networks.

Abstract

An abstract of up to 300 words should include these headings: (1) Scientific Background (2) Objectives (3) Methodology (4) Findings (5) Conclusions (6) Policy Implications / recommendations

Scientific background: Mental Health literacy (MHL) is the ability to understand health information originating from different sources. Little is known about ethnic differences in sources for health information, and the effect of these differences on elderly MHL and on service utilization.

Objectives: Examine the different mental health information sources used by elderly from different ethnic groups, and investigate the effect these differences have on MHL and on service utilization.

Methodology: 893 elderly participants over the age of 60 (562 Israeli born Jews, 109 Bedouins and 222 Former Soviet Union (FSU) completed questioners assessing demographic information, mental health service utilization, MHL and physical and emotional health. A subsample of the respondents (N=522) also participated in an in-depth interview for social network analysis.

Findings: Israeli born Jews reported lower emotional distress, higher mental health literacy and higher utilization of mental health services compared to Jewish immigrants from the FSU and ethnic minorities. We found significant differences between the ethnic groups in sources for mental health information. Notably, immigrants from the FSU tended to rely more on friends and relatives, while Bedouins turned more the religious figures. The characteristics of the social network of participants and its heterogeneity has significant contribution to mental health literacy especially among immigrants.

Conclusions: The heterogeneity of social networks plays an important role in mental health literacy, particularly for immigrant older adults. Improving mental health literacy among immigrants and ethnic minorities' older adults is important in light of the increased mental health distress and lower mental health utilization they report compared to natives.

Policy Implications: Identifying mental health information sources, while focusing on the characteristics of social networks will allow developing evidence based, culturally sensitive interventions to improve MHL and reduce barriers to accessing mental health services among seniors from different ethnic groups.

Section 3: Hebrew Abstract

כותרת מלאה של המחקר

הבדלים אתניים במקורות מידע בריאותי והשפעתם על אוריינות בריאות נפש בקרב מבוגרים בישראל

חוקרים: שם מלא ושייך מוסדי

פרופ' אורה נקש, בית ספר לפסיכולוגיה, המרכז הבנתחומי, הרצליה ישראל
 דר' צחי חייט, בית ספר לתקשורת, המרכז הבינתחומי, הרצליה ישראל
 דר' סארה אבו כיף, המחלקה ליישוב סכסוכים, אוניברסיטת בן-גוריון שבנגב, ישראל
 פרופ' יצחק לבב, הפקולטה למדעי הרווחה והבריאות, אוניברסיטת חיפה, חיפה, ישראל.

מילות מפתח

אוריינות בריאות הנפש, הבדלים אתניים, שימוש בשירותים ורשתות חברתיות

תקציר

תקציר שאורכו עד **200 מילים**, אשר יכלול כותרים אלה: (1) רקע (2) מטרות (3) שיטה (4) ממצאים עיקריים (5) מסקנות (6) המלצות / השלכות לקובעי המדיניות

רקע: אוריינות בנוגע לבריאות הנפש מתייחסת ליכולת להבין מידע אודות בריאות ממקורות מידע שונים. נכון להיום קיים ידע מוגבל בנוגע להבדלים אתניים בכל הקשור למקורות מידע אלה והשפעתם על האוריינות של מבוגרים ושימוש במשאבי בריאות הנפש.

מטרות: בחינת הבדלים במקורות המידע בנוגע לבריאות הנפש בין אנשים מבוגרים מקבוצות אתניות שונות, וכיצד הבדלים אלה קשורים לאוריינות והבדלים בשימוש בשירותים.

שיטה: 893 משתתפים מבוגרים מעל גיל 60 (562 יהודים ילידי הארץ, 109 בדואים ו-222 עולי ברה"מ) השלימו שאלוני מידע דמוגרפי, שימוש בשירותי בריאות הנפש, אוריינות ובריאות גופנית ונפשית. חלק מהמשתתפים (N=522) השיבו בהמשך על ראיון עומק לניתוח הרשת החברתית.

ממצאים עיקריים: מבוגרים ילידי הארץ דווחו על פחות מצוקה נפשית ויותר אוריינות ושימוש במשאבי בריאות נפשית בהשוואה למהגרים וקבוצות מיעוט. בנוסף, היו הבדלים בין הקבוצות בנוגע למקורות מידע, כאשר מהגרים וקבוצות מיעוט נוטים לפנות ולהסתמך יותר על קרוביהם. לאופי הרשת החברתית וגיוונה תרומה משמעותית לאוריינות, בעיקר בקרב מהגרים.

מסקנות: יש חשיבות רבה לאוריינות ולגיוון הרשת החברתית, בעיקר בקרב מיעוטים בגילאים מבוגר. זאת בעיקר לנוכח המצוקה הגדולה יותר עימה מתמודדים אנשים אלה והפנייה הפחותה לעזרה.

המלצות: זיהוי מקורות המידע תוך התמקדות במאפייני הרשתות החברתיות יאפשר לפתח התערבויות מבוססות ראיות מותאמות תרבותית לשיפור האוריינות והפחתת החסמים לפניה לטיפול בקרב מבוגרים מקבוצות אתניות שונות.

Section 4: Executive Summary- Hebrew

רקע מדעי: במדינות רבות, כולל ישראל, האוכלוסייה הכללית מזדקנת ובו בזמן נהיית הטרוגנית

יותר מבחינה אתנית. אחד ההיבטים המדאיגים בנוגע לאנשים מבוגרים הינם החסמים הרבים הקיימים בפנייה ושימוש מועט בשירותים לבריאות הנפש. בעיה זו אף גדולה יותר בקרב אנשים מבוגרים המשתייכים לקבוצות מיעוט או מהגרים [1]. אוריינות אודות בריאות הנפש מהווה גורם מרכזי בהתגברות על חסמים אלה. בהתאם, ככל שהאוריינות גבוהה יותר, כך עולה הסבירות לזיהוי מוקדם יותר של הפרעה נפשית, הכרה ופנייה לגורמי טיפול מתאימים [2]. מחקרים מראים כי שתיים מהאוכלוסיות הפגיעות ביותר בנוגע לכך, קרי בעלות אוריינות נמוכה, הינם אנשים מבוגרים מעל גיל 65 ואנשים המשתייכים לקבוצות מיעוט בחברה. גורם מרכזי בהעשרת האוריינות הינו אופי הרשת החברתית של הפרט [3]. ככל שהרשת החברתית הינה עשירה ומגוונת יותר, מתקיימת בדרכים מגוונות יותר (תקשורת פנים אל פנים לצד תקשורת און-ליין) ומכילה קשרים חזקים רבים יותר, כך היכולת להעשיר את הידע אודות בריאות, ובריאות הנפש בפרט הינו גבוה יותר [4].

מטרות המחקר: במחקר הנוכחי נבחנו הבדלים לגבי אוריינות בריאות הנפש בקרב יהודים ילידי הארץ, בדואים ועולי ברית המועצות (ברה"מ). התמקדנו בהבדלים בין הקבוצות בגישה למקורות למידע אודות בריאות הנפש. בנוסף, נבחנו הבדלים אתניים בקשר שבין מאפייני הרשת החברתית לבין רמת האוריינות.

שיטות המחקר: במחקר הנוכחי לקחו חלק 893 משתתפים (562 יהודים ילידי הארץ, 109 בדואים ו- 222 עולי ברה"מ). מרבית המשתתפים היו נשים (55%, N=498) נשואים או מתגוררים עם בן/בת זוג (68.8%, N=613) כאשר טווח הגילאים נע בין 60 ל-100 (M=69.88, S.D=7.26). עולי ברה"מ דיווחו על מספר שנות ההשכלה הגבוה ביותר, לאחר מכן יהודים ילידי הארץ ולבסוף בדואים. בנוסף, יהודים ילידי הארץ דיווחו על משכורת ממוצעת גבוהה יותר בהשוואה לעולי ברה"מ. המחקר כלל שני חלקים. בחלק הראשון כל המשתתפים ענו על מקבץ שאלונים בנוגע ל: פרטים דמוגרפים, אוריינות אודות בריאות הנפש, תדירות רכישת המידע אודות בריאות, מצוקה רגשית, בריאות פיזית, אקולטורציה ושימוש בשירותים. בחלק השני השתתפו חלק מהמשתתפים (N=522), אשר עברו ראיון עומק במטרה לאסוף מידע אודות הרשתות החברתיות שלהם, בכדי

ליצור סוציוגרמה אשר תמפה את מספר ואופי הקשרים של כל משתתף.

ממצאים: ראשית, נמצא כי יהודים ילידי הארץ דיווחו על מצוקה נפשית נמוכה, בריאות פיזית טובה ואוריינות גבוהה יותר בהשוואה לשתי הקבוצות האחרות. בהתאם להשערת המחקר הראשונה, נמצא כי יהודים ילידי הארץ דיווחו על רמות האוריינות הגבוהות ביותר, לאחר מכן עולי ברה"מ ולבסוף בדואים. בנוגע לשימוש בשירותי בריאות הנפש, נמצא אחוז נמוך יחסית של מענה בקרב כל הקבוצות. עם זאת, בהתאם להשערת המחקר, נמצאו הבדלים מובהקים בין קבוצות המחקר, כך שיהודים ילידי הארץ דיווחו על שימוש רב יותר בשירותי בריאות הנפש בהשוואה לשתי הקבוצות האחרות. בהשערת המחקר השנייה ביקשנו לבחון הבדלים בנוגע למקורות מידע אודות בריאות בין הקבוצות השונות. הממצאים העלו כי רופאים הינם המקור המרכזי להשגת מידע שכזה, ללא הבדלים בין הקבוצות. לצד זאת, עלו הבדלים בנוגע למקורות המידע האחרים, כך שעולי ברה"מ דיווחו יותר על פנייה לבני משפחה וחברים כמקורות מידע. כמו כן, בדואים דיווחו על פנייה מועטה לאירגוני בריאות רשמיים, ולצד זאת הסתמכות רבה יותר על מקורות דת. בנוסף, הן בדואים והן עולי ברה"מ דיווחו על הסתמכות רבה יותר על ארגוני צדקה כמקור מידע, בהשוואה ליהודים ילידי הארץ. בנוגע להשערת המחקר השלישית אודות הבדלים ברשתות החברתיות, בשל האופי הייחודי של הרשתות החברתיות של המשתתפים הבדואים (ההיקף הגדול של הרשת והקושי להבחין בין עוצמות הקשרים השונות) הוחלט לערוך השוואה רק בין משתתפים יהודים ילידי הארץ לבין עולי ברה"מ. בהשוואה בין שתי הקבוצות, בחנו קשר בין שני סוגי גיוון רשתי (גיוון אתני בתקשורת פנים אל פנים, וגיוון אתני של תקשורת און ליין) ויכולתם לנבא שני ממדים נפרדים של אוריינות אודות בריאות הנפש; ידע כיצד לחפש אחר אינפורמציה על בריאות נפשית וסטיגמה אודות בריאות הנפש. מהממצאים עלה כי בנוגע לתקשורת פנים אל פנים נמצאה אינטראקציה מובהקת בין קבוצה אתנית לבין גיוון רשתי בנוגע לידע כיצד לחפש אחר אינפורמציה, אולם לא בנוגע לסטיגמה. בהתאם לכך בקרב יהודים ילידי הארץ נמצא קשר שלילי בין גיוון רשתי לבין ידע אודות חיפוש אחר אינפורמציה, בעוד שבקרב עולי ברה"מ נמצא קשר חיובי. בנוגע לתקשורת און-ליין, נמצאה אינטראקציה מובהקת בין קבוצה אתנית לבין גיוון רשתי בנוגע לסטיגמה אולם לא בנוגע לידע כיצד

לחפש אחר אינפורמציה. בהתאם לכך, בקרב עולי ברה"מ נצא קשר חיובי בין גיוון רשתי און-ליין לבין סטיגמה. בניגוד לכך לא נמצא קשר מובהק בין משתנים אלה בקרב יהודים ילידי הארץ. לצד נתונים אלה, נמצא גם כי להגירה היה אפקט ממתן בקשר שבין ידע כיצד לחפש מידע אודות בריאות הנפש לבין מצוקה נפשית. בהתאם לכך בעוד שבקרב יהודים ילידי הארץ ידע רב יותר היה קשור למצוקה נמוכה יותר, בקרב עולי ברה"מ לא נמצא קשר בין המשתנים.

מסקנות: לנוכח התפקיד המכריע שיש לאוריינות בכל הקשור להפחתת מצוקה וסטיגמה וקידום פנייה לטיפול, במחקר הנוכחי בקשנו לבחון הבדלים אתניים באוריינות בקרב קשישים. בהתאם להשערותנו ובהלימה עם מחקרי עבר [1,2] מצאנו כי לילידי הארץ היהודים מדדים טובים יותר בכל הקשור למצוקה נפשית, אוריינות ושימוש במשאבי בריאות נפשית בהשוואה למהגרים וקבוצות מיעוט. כמו כן, מצאנו קיימים הבדלים בין הקבוצות בנוגע למקורות אליהם פונים לשם מידע אודות בריאות נפשית, כאשר מהגרים וקבוצות מיעוט נוטים לפנות ולהסתמך יותר לקרוביהם לשם השגת המידע אודות בריאות. חשיבותה של הרשת החברתית הקרובה, במיוחד בקרב מהגרים, קיבלה תוקף נוסף הודות לממצאים בנוגע לתפקיד החשוב שמהווה המוצא האתני בקשר שבין הגיוון הרשת החברתית לבין אוריינות. בהתאם לכך מצאנו כי בקרב מהגרים הגיוון האתני של הרשת, הן פנים אל פנים והן און ליין, מהווה גורם משמעותי בנוגע להגדלת אוריינות [3,4].

השלכות למדיניות והמלצות למקבל ההחלטות: זיהוי מוקדם של מצוקה נפשית וחיפוש עזרה מתאימה יכולים להתקיים רק אם האנשים הנמצאים במצוקה או הקרובים אליהם ידעו לזהות בצורה טובה את הסימנים המקדימים להתפתחות המצוקה, את דרכי הטיפול המתאימות ומקורות העזרה אליהם ניתן לפנות. אוריינות הינה גורם מכריע להפחתת אי השוויון הקיים בנוגע לנגישות למידע אודות בריאות הנפש. כמו כן, הבנת יחסי הגומלין בין גיוון הרשת החברתית לבין אוריינות אודות בריאות הנפש מעלה את הצורך במחקרי המשך אשר יבחנו מעבר למאפייניו של הפרט גם את אופי הרשת החברתית שלו. הבנה טובה יותר של קשרים אלה בעתיד יכולה לסייע בהפחתת אי השוויון הקיים בכל הקשור לאוריינות אודות בריאות הנפש בין מוצאים אתניים שונים וקבוצות מיעוט וכן בין מהגרים מבוגרים לבין ילידי הארץ.

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Section 5: Comprehensive scientific report - English

Scientific background

In many high income countries, including Israel, populations are both aging and becoming increasingly culturally diverse. In Israel, approximately 11% of the population is over 65 years, of which an overwhelming majority immigrated to the country (roughly 70%) [1]. Common mental disorders (i.e., mood and anxiety disorders) tend to decline with age. Yet, they remain frequent among older adults. While treatments for those disorders exist [2-6], mental health service underutilization is prominent among seniors [9-11]. Mental health service underutilization is particularly prominent among elderly migrants and ethnic minorities [7, 8]. Studies in the general population documented different barriers to care, including structural (e.g., financial) and subjective (e.g., stigma) barriers [9-13]. Limited research exists on barriers to care among older migrants and ethnic minorities. Research that does exist emphasizes the need for education to increase knowledge about and reduce stigma associated with mental illness and mental health services- also known as mental health literacy (MHL) [13-15].

MHL refers to knowledge and attitudes regarding mental health that aid in the recognition, behavior management and prevention of mental health problems [16]. High MHL has the potential to protect consumers from harm and empower them to fully participate in knowledge-based decision-making [17]. Adults over the age of 65 years have the lowest levels of health literacy compared with younger age groups [18, 19]. Also, migrants and ethnic minorities are subject to communication inequalities, defined as decrease in access and ability to process and utilize health information [20]. In Israel, studies documented lower knowledge about mental health issues and more negative attitudes toward mental health services among Arabs and immigrants primarily from the Former Soviet Union (FSU) compared to their native Jewish counterparts [21, 22]. These differences perpetuate gaps in health knowledge and ultimately have the potential to exacerbate mental health services disparities [23-26].

Sources for mental health information include contacts with professionals such as medical and mental health providers and/or lay interpersonal communication sources, such as other service users, family and friends, neighbors and religious

leaders [27-29]. Lay people can also rely on various forms of mass media to access mental health information (e.g. magazines, television, radio, Internet etc.) [30]. Using the internet to access health information, where it is widely prevalent, is steadily rising among the general population including seniors [18]. Yet, Israeli Jews relied more on computer mediated communication (CMC) to communicate with healthcare professionals, as compared to both Israeli Arabs and migrants from the FSU [31].

Factors influencing seniors' ability to gain useful health information include socio-economic factors such (e.g. formal education, income and literacy levels) and psychological factors (e.g. coping skills, motivation and cultural background) [29-30]. Previous findings highlight a key barrier for accessing mental health information among migrants and ethnic minorities – absorption into the new majority culture, and ability to learn about and adapt to it -a process referred to as “acculturation” [32-35]. Cultural distance (collectivistic vs. individualistic cultures) and discrimination experiences found to hinder this process [36, 37]. It is thus, not surprising that studies in the US documented that elderly migrants and ethnic minorities are likely to rely more on their social ties with other lay people as sources for health information compared to their US born counterparts who tend to rely more on information originating from mental health professionals [38]. Similar findings were documented among Arabs in Israel [22] and immigrants – primarily from the FSU [39] who reported preferences for seeking help for emotional problems from their social networks. However, until now no attention has been paid to identify what types of social ties are more effective in promoting MHL among elderly migrants.

Social network analysis (SNA) focuses on social objects (e.g., people) and the links between social objects that depict various kinds of relationships [40]. SNA paradigm does not merely focus on the existence of social ties among individuals, but explores the strength of these ties and the distribution of individual characteristics throughout the social network [41, 44]. Research on the diffusion of information, suggests that homophilous ties (consisting of ties among individuals and similar others) are less likely to lead to the distribution of new information compared with heterophilous networks [45, 46]. Research on information diffusion within networks has suggested that the effect of being a migrant or not can interact

with those of homophily [47]. Homophily among native people may help to promote diffusion, but migrants are more likely to be positively influenced by heterophilous ties to native born individuals than by homophilous ties to other migrants [48]. These heterophilous ties can offer access to information shared by individuals in different social circles [45], thus offering access to information which is in some degree additive, rather than overlapping. Based on these findings we can expect that older migrants and ethnic minorities' engagement in heterophilous ties with natives will promote diverse information exchange and as a result enhance their MHL.

It is imperative to also look at the strength of the ties individuals have with members of their social ties, in order to fully understand the likelihood of receiving information through it and the extent to which such information will contribute to the recipient's MHL. Tie strength is simply a relationship between two persons that can be described as weak or strong. Furthermore, when studying social networks of elderly from different ethnic groups, attention should be paid to the adaptation of CMC technologies (such as e-mail and the video conferencing applications). The use of technology in general and computers in particular is on the rise among the elderly [49]. Findings indicate that native born Jews in Israel have an advantage in digital access, compared to Arabs and migrants from the FSU [50, 51]. While gaps in physical access to CMC between native Jews and minorities are diminishing in recent years; native Jews still gain more knowledge through CMC when compared to ethnic minorities [50]. These differences persist among the elderly [51] even when controlling for sociodemographic factors (e.g., education, income) [52]. CMC can provide opportunities to communicate with more people and access useful information for disadvantaged groups, such as older adults who are likely to be retired and potentially isolated [53-56].

Research objectives

In this project we examined differences in MHL among Israeli elderly born in the FSU, Bedouin Arabs and native Jews. We focused on identifying the sources for accessing mental health information used by members of each group. In addition, we investigated ethnic differences the association between the characteristics of the

individual's social network (both their ethnic homophily level as well and the intensity of the social ties) and their MHL.

Working Hypotheses

The primary working hypotheses for the project were: (H1) Israeli elderly Bedouins and Israeli elderly born in the FSU will have lower MHL, and report lower utilization of mental health services, compared to elderly Israel- born Jews. (H2) Israeli elderly Bedouins and elderly born in the FSU will rely more on lay interpersonal communication for accessing mental health information, as compared to elderly native Jews. The later will rely more on communication with mental health experts for accessing mental health information. (H3) There will be a positive correlation between the degree of heterophily of Israeli elderly Bedouin Arabs and Israeli elderly born in the FSUs' social network and their MHL. We further explored whether these predictions hold both in face to face and in CMC.

Methodology

Participants: 893 older adults participated in the study (562 Israeli born Jews, 109 Bedouins and 222 immigrants from FSU); 422 participants were recruited in person and completed a paper and pencil version, and 471 participated online using Qualtrics platform for targeted recruitment. Table 1 presents socio-demographic characteristics of the sample by ethno-national group. A majority of the participants were women (N= 489, 55%) and were married or living with partner (N=613, 68.8%). Participants age range from 60 to 100 (M= 69.88, SD=7.26). Immigrants from FSU had more years of formal education, than Israeli born Jews did, and Bedouins Arabs had the fewest. Also, Israeli born Jews reported higher average income compared to participants from the FSU.

Table 1.

Socio-Demographic Characteristics of the Sample by Ethno-National Group

	Israel - born Jews (N=562)	Bedouins Arab (N=109)	FSU immigrants (N=222)	Statistic
Gender				$\chi^2 (2) = 16.8,$ $p < .000$

Male	282 (50.2%)	46 (42.2%)	76 (34.2%)	
Female	280 (49.8%)	63 (57.8%)	146 (65.8%)	
Age (Mean, SD)	70.15 (7.03)	68.84 (7.05)	69.68 (7.90)	F (2, 890) = 1.6, <i>n.s.</i>
Years of formal education (Mean, SD)	14.19 (3.34)	2.91 (4.42)	15.67 (5.23)	F (2, 854) = 352.02, $p <$.000
Family statuses*				
Single	16 (2.8%)	2 (1.9%)	2 (.9%)	
Married/living with partner	402 (71.5%)	52 (48.1%)	159 (72%)	
Divorced/ separated	72 (12.8%)	8 (7.4%)	22 (10%)	
widow	72 (12.9%)	30 (27.8%)	38 (17.2%)	
In polygamous marriage	-	16 (14.9%)	-	
Income** (Mean, SD)	3.14 (1.30)	-	2.26 (1.22)	t (766)= 8.76, $p <$.000

Note.* We were not able to test for statistical differences among ethnic groups in family status due to the fact the only among Bedouins participants were able to indicate status of polygamy.

**A large majority of Bedouin Arabs declined to provide information about income and therefore we were not able to include descriptive statistics.

Measures and Procedure: Study 1: All participants completed series of questionnaire in their native language (Hebrew, Russian, Arabic) including:
(1) *Socio-demographic questionnaire* included questions assessing: age, gender, income (1= a lot under the average salary to 5= a lot above the average salary), formal education, family status (single/ married or living with partner/ divorced or separated/ widow/ for Bedouin participants only: married to more than one woman (for men)/ married to a man with more than one wife (for women)), country of birth.

(2) *Mental Health Literacy Scale (MHLS)* [80]. This scale consists of 35 items covering the following dimensions: recognition of mental health disorders, knowledge of how to search for mental health information, knowledge of risk factors and causes, knowledge of self-treatment, knowledge of professional help available, and attitudes that promote recognition and appropriate help-seeking. The MHLS showed good reliability and validity in studies conducted in European countries [57]. Due to low interator reliability of four dimensions; 'Recognition of mental health disorders' (*Cronbach's alpha* = .26), 'Knowledge of risk factors and causes' (*Cronbach's alpha* = .22), 'Knowledge of self-treatment' (*Cronbach's alpha* = .25) and 'Knowledge of professional help available' (*Cronbach's alpha* = .24), we were not able to include them in the analysis. The two additional dimensions showed good reliability including: 'knowledge of how to search for mental health information' (*Cronbach's alpha* = .79) and 'attitudes that promote recognition and appropriate help-seeking' (*Cronbach's alpha* = .85).

(3) *Questionnaire on the frequency of acquiring mental health information*. The items were adapted from the Health Information National Trends Survey (HINTS) [58]. Here, we asked respondents to indicate to what degree they would trust information about health or medical topics from each of the following: doctor, family or friend, government health agencies, health organization or groups, charitable organization and religious organizations and leaders. The frequency of using each source of information was measured on a Likert scale ranging from 1 (a lot) to 4 (not at all).

(4) *The General Health Questionnaire (GHQ-12)* [59]. A 12- item screening measure for common mental disorders that assesses emotional distress in the preceding month. It has been used in many countries [60], including in the Israeli National Health Survey [61]. Items are rated on a four- point Likert scale from 1 ('often') to 4 ('never'). Final score was computed as the summary for all items, where higher scores indicated increased emotional distress. In the current study internal consistency reliability was good (*Cronbach's alpha* = .86)

(5) *Patient Health Questionnaire (PHQ-15)* [62] (Kroenke, Spitzer, & Williams, 2002). A somatic symptom subscale derived from the full Patient Health Questionnaire (PHQ), which is a self-administered version of the PRIME-MD

diagnostic instrument for common mental disorders. The PHQ-15 comprises 15 somatic symptoms, each symptom scored from 0 (“not bothered at all”) to 2 (“bothered a lot”). In the current study two items were removed to allow for cultural (i.e., “pain or problem during the sex” was removed following concerns voiced by Bedouin participants) and age (i.e., “problems with the menstrual periods”) adaptation to the population studied Internal consistency in the current study was good (Cronbach's $\alpha = .80$)

(6) *Bicultural Involvement and Adjustment Scale* [63]. An 18 - item measure reflecting a definition of acculturation as consisting of adoption of receiving-culture practices and retention of heritage-culture practices. The measure was adapted to the Israeli context [64] and consists of two separate subscales (Israeli and FSU/Arab Israelis) that assesses use of Hebrew and Russian/Arabic and affinity for Israeli and Russian/Arab food, entertainment, music etc.

(7) *Mental Health Service utilization*. Respondents were asked whether they had visited any of a list of professionals to talk about problems related to their mental or emotional health. Following the work of Lerner [65] based on the Israeli segment of the WHO/WMH Survey [66] the professionals list comprised those in the specialist mental health services (psychologists, psychiatrists, social workers), general medical professionals (such as GPs), religious counselors (rabbis, sheikhs), and healers (e.g., naturopaths). The questionnaire asked about consultation in the preceding 12 months, the type of organization providing the service, the number of visits per year and satisfaction with services.

Study 2: A subsample of the respondents (N=522) also participated in an in-depth interview for social network analysis [67] immediately following the completion of the survey. In these interviews we used an interview-based data collection procedure for social network analysis, designed to gather information about the individuals in the person's social network (i.e., individuals known by the interviewee). We followed the participant-aided network diagram approach (sociogram) to obtain information regarding the number and characteristics of people in the interviewee's online and offline social network; as well as the nature and strength of the social ties [67].

Findings

Differences in clinical factors between ethno-national groups

Table 2 presents the means and SD of the primary clinical study variables by ethno-national group. Israeli - born Jews reported lower levels of emotional distress and higher levels of physical health compared to participants from the other two ethnic groups, while Bedouins reported highest levels of emotional distress and worst physical health. We also found differences in acculturation patterns between FSU and Bedouins Arabs, such that most of Bedouins reported separation acculturation pattern while a majority of participants from the FSU reported of both separation and integration patterns.

Table 2.

Main Clinical Study Variables by Ethno-National Group

	Israel - born Jews (N=562)	Bedouins Arab (N=109)	FSU immigrants (N=222)	Statistic
Emotional distress (GHQ) (M, SD)	7.52 (5.64)	13.58 (8.03)	9.10 (5.74)	F (2, 887)= 50.74, $p < .000$
Physical health (PHQ) (M, SD)	4.70 (3.77)	12.58 (6.37)	6.51 (4.67)	F (2, 642)= 94.98, $p < .000$
Acculturation				$\chi^2 (3) = 60.79$, $p < .000$
Separation	-	78 (72.9%)	106 (48%)	
Assimilation	-	0 (0%)	23 (10.4%)	
Integration	-	12 (11.2%)	88 (39.8%)	
Marginalization	-	17 (15.9%)	4 (1.8%)	
MHL				
Knowledge of how to search for mental health information (M, SD)	15.28 (3.58)	10.97 (3.81)	13.32 (3.74)	F (2, 883)= 72.19, $p < .000$
Attitudes that	56.40 (9.72)	43.06	47.31 (8.13)	F (2, 888)=

promote		(10.18)		102.41, $p < .000$
recognition and				
appropriate help-				
seeking (M, SD)				
Mental health				
services				
utilization				
Psychologist	28 (21.7%)	1 (1.7%)	2 (3.6%)	$\chi^2 (2) = 16.62$, $p < .000$
Psychiatric	8 (6.2%)	0 (0%)	0 (0%)	$\chi^2 (2) = 6.96$, $p < .05$
Social worker	10 (7.8%)	6 (10.3%)	1 (1.8%)	$\chi^2 (2) = 3.66$, <i>n.s.</i>
Psychiatric	2 (1.6%)	0 (0%)	0 (0%)	$\chi^2 (2) = 1.36$, <i>n.s.</i>
hospital				

Study 1

Hypothesis #1: Ethno-national differences in MHL and MH service utilization

In accordance with the first hypothesis, we found that Israeli - born Jews reported higher MHL compared to the other ethnic groups. Specifically, Israeli - born Jews reported better knowledge of where to search for mental health information and ($F(2, 883) = 72.19, p < .000$) and increased knowledge that promotes recognition and appropriate help seeking ($F(2, 888) = 102.41, p < .000$). Elderly Bedouins reported the lowest levels of MHL as manifested in the scores on the two scales described above. (Table 2).

Regarding utilization of mental health services, we asked participants if they used one or more of the following specialized mental health services: psychologist, psychiatric, social worker and/ or psychiatric hospital [68]. Less than a third of the sample completed this item ($N = 243$; 27.2%). Across all groups only a minority of respondents used specialized mental health services in the past ($N = 34$, 17.17% of those who completed the item). In line with our hypothesis we found significant differences between ethnic groups in utilization of mental health services $\chi^2 (2) = 14.23, p < .01$. Specifically, Israeli- born Jews reported higher mental health service

utilization (N= 24, 28.6%) compared to participants from them FSU (N=3, 5.4%) and Bedouins (N=7, 12.1%), through these results should be cautiously interpreted given the low N of responses (Table 2).

Hypothesis #2: Ethno-national differences in the sources of MH information

In our original second hypothesis, we sought to explore the differences in the sources of mental health information among ethnic groups using Hints questionnaire. However, due to the low report of mental health issues in the general population, and specifically among older adults, we decided to ask about sources of general health information. As can be seen in Table 3 medical doctors serve as a main source of health information across the ethnic groups. Other primary sources of health information across the groups include family members and friends, government health agencies and health organizations or groups. Some group differences emerged in the sources of health information. Immigrants from the FSU reported significantly more seeking health information from family and friends compared to participants from the other two groups; Bedouin Arabs reported significantly less reliance on health organizations or groups and more reliance on religious organization compared to participants from the two ethnic groups. In addition. Bedouins Arabs and FSU immigrants relied more on charitable organization as source of information than Israeli born Jews (table 3).

Table 3
Differences in Sources of Information about Health or Medical Topics (HINTS Questioner)

	Israel - born Jews (N=562)	Bedouins Arab (N=109)	FSU immigrants (N=222)	Statistic
Doctor	3.60 (.60)	3.50(.80)	3.57 (.66)	$F(2, 882) = .53$, <i>n.s.</i>
Family and friends	2.61 (.80)	2.42 (1.02)	2.74 (.86)	$F(2, 872) = 6.1$, $p < .01$
Government health agencies	2.84 (.87)	2.80 (1.12)	2.94 (.86)	$F(2, 865) = .1.1$, <i>n.s.</i>
Health organizations or groups	3.04 (.84)	2.04 (1.12)	2.86 (.94)	$F(2, 865) = 46.84$, $p < .001$
Charitable organization	1.63 (8.1)	2.11 (1.08)	1.98 (.89)	$F(2, 866) = 21$, $p < .001$
Religious organization and leaders	1.40 (.74)	2.30 (1.23)	1.48 (.80)	$F(2, 869) = 52.9$, $p < .001$

Study 2:

Hypothesis #3: Ethnic differences in the association between social network and MHL

When looking at the respondent's social network, the number of social ties our respondents reported had ranged from 2 to 112 ($M=29.08$; $SD\ 7.72$). The number of strong social ties our respondents listed ranged from 2 to 23 ($M=7.09$; $SD\ 4.86$). The number of ties our respondents turn to for health related help (either advice, or actual help) ranged from 0 to 5, the average number was .72 ($SD\ .34$). The number of social ties our participants maintain through CMC (e.g., e-mail, whatsapp etc.) ranged from 0 - 17 ($M=9.3$; $SD\ 4.53$). Table 4 provides information on the characteristics of the social network by ethnic group. It is important to note that the interview protocol used to gather these data was adjusted for the Bedouin Arab ethnic group. For instance, given the large number of social ties reported by Bedouin Arab respondents, they were asked to list only people with whom they were in touch in the last couple of months. Furthermore, the distinction between strong and weak ties within the Bedouin Arab group were less strict, and respondent found it difficult (and in some cases even refused) to title their social ties as either strong or weak. These challenges can be partially understood in the context of the collectivistic nature of the Bedouin Arab social group, and the documented challenges of introducing new data gathering tools in collectivistic societies [69]. The descriptive statistics provided in this section for general depiction of our respondents' social ties. Prior to conducting any analysis of these data, all of the measures discussed above were normalized as they are all sensitive to the size of the respondents' network size; i.e., the number of social ties the respondent has [70].

Our respondents social diversity was calculated based on Blau's [71] diversity (heterogeneity) index, which equals $1 - \sum_{i=1}^k p_i^2$ (where p_i is the proportion in the population of members belonging to category i). For example, Blau's index for ethnic diversity for an individual with two Ashkenazic friends, two Sephardic friends, one friend from FSU, no Arabic friends, one Ethiopian friend, no mixed friends, and no other friends will be: $1 - \left[\left(\frac{2}{6}\right)^2 + \left(\frac{2}{6}\right)^2 + \left(\frac{1}{6}\right)^2 + \left(\frac{0}{6}\right)^2 + \left(\frac{1}{6}\right)^2 + \left(\frac{0}{6}\right)^2 + \left(\frac{0}{6}\right)^2 \right] = 0.27$.

A Blau's index value of 0 means that all members in the examined group are of the

same category; a maximum value is received when the examined group is equality distributed between the different categories. The Blau diversity index was calculated based on our respondents' friend distribution within seven ethnic categories: Ashkenazi (European/American descent); Sephardic (North African/Middle Eastern Descent), FSU, Arabic, Ethiopian, mixed, and other). These categories were self-determined by the participants during the interview. Our respondents social diversity ranged from .22 to .92 ($M=.72$, $SD=.18$). Our respondents Online Ethnic Diversity was calculated, based on Blau's [71] diversity (heterogeneity) index – in the same manner discussed in the Ethnic Diversity measure. The only difference was that the Online Ethnic Diversity measure was calculated only for our respondents' social ties with whom our respondents maintained their relationship using computer mediated communication (e.g., Skype, Facetime, etc.). Our respondents online social diversity ranged from .36 to .84 ($M=.79$, $SD=.11$).

Table 4
Means and SD of Social Network Characteristics by Ethnic Group

	Israel - born Jews (N=233)	Bedouins Arab (N=141)	FSU immigrants (N=130)
Number of social ties	26.31 (8.53)	38.17(7.14)	24.22 (9.39)
Number of strong social ties	6.89 (4.12)	8.32 (3.17)	6.15 (4.73)
Number of ties our respondents turn to for health related help	.72 (.42)	.97 (.32)	.63 (.27)
number of social ties participants maintain through CMC	12.71 (5.68)	2.74 (1.13)	10.32 (3.77)

a. Ethnic diversity characteristic of social network and MHL

The Bedouin respondents were more reluctant to provide the ethnic affiliation of their social ties, and in many cases chose not to complete this field. We therefore conducted separate analyses comparing Israeli born Jews and FSU participants to examine the association between social network characteristics and MHL. We examined the moderating role of immigration status in the association between

ethnic diversity and knowledge about how to search for mental health information using *Hierarchical Linear* regression. The model was significant, predicting 24.4% of the variance in knowledge about how to search for mental health information. The analysis revealed a significant interaction effect between immigration status and ethnic diversity (*partial r* = .19, $p < .01$), suggesting that the effect of immigration status on knowledge about how to search for mental health information depended on ethnic diversity. For Israeli born Jews a significant negative correlation was revealed between ethnic diversity and knowledge about how to search for mental health information ($b = -.62$, $SEb = .03$, $\beta = -.16$, $p < .05$). In contrast, there was a positive significant correlation between ethnic diversity and knowledge about how to search for mental health information among migrants from the FSU ($b = .52$, $SEb = .33$, $\beta = .27$, $p < .05$) (Table 5).

In addition, the moderating role of immigration status in the association between ethnic diversity and attitudes that promote recognition and appropriate help seeking was significant, predicting 44% of the variance. As can be seen in Table 4, the analysis only revealed significant main effects such that compared to immigrant Jews from the FSU, Israeli born Jews reported higher attitudes that promote recognition and appropriate help seeking (*partial r* = -.63, $p < .001$). In addition, higher ethnic diversity predicted higher attitudes that promote recognition and appropriate help seeking (*partial r* = .14, $p < .05$). However, the analysis did not reveal a significant interaction effect between immigration status and ethnic diversity (*partial r* = .03, *n.s.*) (Table 5).

b. Online Ethnic diversity characteristic of social network and MHL

We further examined the moderating role of online ethnic diversity of social network in the association between online ethnic diversity and knowledge about how to search for mental health information while controlling for sociodemographic variables, the model was significant, predicting 24% of the variance. As can be seen in Table 5, although the analysis did not reveal a significant interaction effect, simple slopes for the association between online ethnic diversity and knowledge about how to search for mental health information revealed positive significant correlations between online ethnic diversity and knowledge about how to search for mental health information among FSU ($b = .87$, $SEb = .35$, $\beta = .21$, $p < .05$). For

Israeli born Jews there was no significant correlation between online ethnic diversity and knowledge about how to search for mental health information ($b = .04$, $SEb = .32$, $\beta = .01$, $n.s.$) (Table 6).

In addition, the moderating role of immigration status in the association between online ethnic diversity and attitudes that promote recognition and appropriate help seeking was significant, predicting 46.05% of the variance. As can be seen in Table 5, the analysis indicated a significant effect for immigration status and online ethnic diversity. Thus, being Israeli born Jews (*partial* $r = -.63$ $p < .001$) and having higher online ethnic diversity (*partial* $r = .15$ $p < .05$) predicted higher knowledge about how to search for mental health information. Most importantly, the analysis revealed a significant interaction effect between immigration status and online ethnic diversity (*partial* $r = .18$, $p < .01$). For Israeli born Jews there was no significant correlation between online ethnic diversity and knowledge about how to search for mental health information ($b = -.12$, $SEb = .70$, $\beta = -.01$, $n.s.$). In contrast, there was a positive significant correlation between online ethnic diversity and attitudes that promote recognition and appropriate help-seeking among migrants from the FSU ($b = 2.82$, $SEb = .75$, $\beta = .26$, $p < .001$) (Table 6).

Table 5.

Hierarchical Linear Model Examining the Moderating Role of Ethnic Diversity in the Association Between Immigration Status and Different Dimensions of Mental Health Literacy

	Knowledge about how to search for mental health information			Attitudes that promote recognition and appropriate help-seeking		
	B	SE	β	B	SE	β
Step 1						
Age	-.18	.03	-.37***	-.25	.08	-.20**
Gender	.33	.47	.4	-.82	1.32	-.04
Education	.25	.08	.18**	.44	.22	.13*
Step 2						
Immigration status	- 1.56	.46	-.19**	-12.83	1.02	-.62***
Ethnic diversity	.02	.23	.01	1.09	.50	.10*
Step 3						
Immigration status X Ethnic diversity	1.37	.45	.54**	.42	1.02	.06

Note. * $p < .05$ ** $p < .01$ *** $p < .001$,

Table 6.

Hierarchical Linear Models Examining the Moderating Role of Online Ethnic Diversity in the Association Between Immigration Status and Different Dimensions of Mental Health Literacy

	Knowledge about how to search for mental health information			Attitudes that promote recognition and appropriate help-seeking		
	B	SE	β	B	SE	β
Step 1						
Age	-.19	.03	-.38***	-.25	.08	-.2**
Gender	.4	.48	.05	-.82	1.32	-.04
Education	.26	.08	.19	.44	.22	.13*
Step 2						
Immigration status	-	.47	-.19**	-12.8	1.01	-.62***
	1.51					
Ethnic diversity	.43	.24	.10	1.26	.52	.12*
Step 3						
Immigration status X Online ethnic diversity	.83	.47	.31	2.94	1.02	.43**

ote. * $p < .05$ ** $p < .01$ *** $p < .001$,

Additional Findings - Differences between Israeli born Jew and FSU

Additional analyses revealed immigration status had a moderating role in the association between knowledge about how to search for mental health information and emotional distress (GHQ) while controlling for sociodemographic variables. A hierarchical linear regression revealed a significant model, predicting 8.8% of the variance in emotional distress. As can be seen in Table 7, above the main effect of the sociodemographic variables and main variables, the analysis revealed a significant interaction effect between immigration status and knowledge about how to search for mental health information (*partial* $r = .09$, $p < .05$). Simple slopes for the association between knowledge about how to search for mental health information and emotional distress were tested for each group. While a significant negative correlation between knowledge about how to search for mental health information and emotional distress was documented for Israeli born Jews ($b = -.36$, $SEb = .08$, $\beta = -.25$, $p < .000$), there was no significant correlation between knowledge about

how to search for mental health information and emotional distress among migrants from the FSU ($b = -.09$, $SEb = .10$, $\beta = -.06$, n.s.).

Table 7.

Hierarchical Linear Model Examining the Moderating Role of Immigration Status in the Association Between Knowledge About How to Search For Mental Health Information and Emotional Distress

	B	SE	β
Step 1			
Age	.04	.04	.06
Gender	1.30	.48	.12**
Education	-.08	.06	-.06
Recruitment mode (online, in person)	1.50	.51	.13**
Step 2			
Immigration status (Israeli born Jew, FSU Immigrants)	.85	.25	.15**
Knowledge about how to search for mental health information	-.98	.24	-.18***
Step 3			
Immigration status X Knowledge about how to search for mental health information	.50	.23	.09*

א. * $p < .05$ ** $p < .01$ *** $p < .001$,

Discussion

In the current project we examined differences in MHL among elderly from three ethno-national groups in the Israeli society; Israeli born Jews, immigrant Jews from the FSU and Bedouin Arabs. Our hypotheses were partially supported. Israel - born Jews, lower emotional distress, higher MHL and higher utilization of mental health services compared to the other two ethno-national minority groups. These findings are in accordance with previous studies on health status and health information that show immigrants and ethnic minority groups are less

knowledgeable about mental health information [23-25] and in turn are more vulnerable to develop mental health problems while encountering greater barriers to services [16, 25].

The MHL approach assumes that people can acquire basic knowledge about mental health problems and services that can guide their subsequent help-seeking behavior. Jorm et al. [71] coined the term “mental health literacy” to refer to the “knowledge and beliefs about mental disorders which aid their recognition, management or prevention” (p. 182). While health literacy among the general public is more developed i.e., knowledge how to prevent, recognize and access services for common physical health problems (e.g., knowing about the health consequences of smoking or the need to eat a balanced diet), many people have limited knowledge about the symptoms of common mental illness and are unaware of the effectiveness of biomedical, psychiatric or psychological interventions [72]. Older adults are particularly disadvantaged when it comes to health literacy with studies documenting significant decline in health literacy after age 55 [18, 19].

To date, limited research examined MHL among older adults in general and particularly among migrant seniors. In line with this our findings documented not only that migrant and ethnic minorities older adults have lower levels of MHL, but they also reported lower utilization of mental health services compared to their native counterparts, despite a higher mental health need [23-25]. Our findings also support previous research showing that knowledge about how to search for mental health information, which is a seminal component of MHL is negatively associated with mental health distress [23-25]. In the current study, we further examined the role of migration in this association. Our findings show that while among native older adults, increased knowledge about how to search for mental health information was associated with lower emotional distress, among migrant seniors there was no significant association between these variables. These results suggest that a closer examination of the assumption of the benefits of MHL to reducing mental health distress is warranted when working with migrant older adults.

A critical venue to eradicate mental health service disparities is identifying the sources of information to gaining knowledge and forming attitudes on mental health. Our findings showed that the majority of the participants, across the ethno-

national groups, relied on professionals as a main source for health information, in particular the medical doctors. However, it is important to note that participants from the FSU as well as Bedouins reported that they also accessed health information through interpersonal communication. Specifically, FSU reported relying on family and friends while Bedouin Arabs reported relying on religious leaders and organizations for health information. These findings are in accordance with previous studies conducted in the US and in Israel [22, 23] who found that compared socially advantaged groups, immigrants and ethnic minority groups report strong preferences for seeking help for emotional problems and health information from social networks.

Social network and MHL

In the current study we further examined ethnic differences in social networks characteristics and its association with MHL. We focused on face to face and online social network and examined their association with different dimensions of MHL. Regarding the differences between Israeli born Jews and FSU, the findings revealed that in both social networks types immigration statuses served as moderator in the association between social network and MHL. Previous studies showed that immigrants tend to have more homophilous ties. However, immigrants are more likely to be positively influenced by heterophilous ties to native born individuals than by homophilous ties to other migrants [48]. In line with our hypothesis, we found that among Israeli born Jews ethnic diversity was not significantly associated with MHL. In addition, our findings about the negative correlation between ethnic diversity and knowledge about how to search for mental health information are consistent with previous findings about the idea that homophily among native people may help to promote information diffusion [48].

In contrast, among immigrants from the FSU, ethnic diversity in social network played an important role in the association with MHL. Moreover, we found that among immigrants from the FSU both face to face and online social networks had were associated with MHL dimensions. Accordingly, regular (face to face) social network diversity was associated with more knowledge about how to search for mental health information. In contrast, online social network diversity was associated with higher attitudes that promote recognition and appropriate help-

seeking. These findings expand previous knowledge about the advantage of social network heterophilous by revealing the unique association between each social network type and his contribution to higher specific MHL dimension.

Limitations

Our study has several limitations. First, we used a convenience sample which may be subject to selection bias. Thus, it is possible that those who chose to participate in our research are more familiar with and willing to discuss issues related to emotional distress. Second, we used a recently construed scale to assess knowledge about how to search for mental health information. Although the scale showed good reliability its cultural adaptability should be further examined. Measurement of MHL using a scale-based measure have been limited, including a lack of psychometric and methodologically robust scale-based measures [57]. More research is needed to develop culturally appropriate measures to assess MHL. Culture is shaped within a broader context of social norms and social issues that can be directly related to appropriateness of mental health information. Therefore, MHL among older migrant adults cannot be examined in isolation of these greater social norms, values and preferences. Future qualitative research can expand our understanding of culturally construed MHL and relevant mental health information. Third, for some of the variables such as mental health utilization we had a low response rate and thereof or interpretation of findings should be done with caution. Finally, due to low diversity in the characteristics of the social network among Bedouin participants we could not include these participants could not examine differences in social network characteristics among all three groups.

Conclusions

When emotional distress is recognized and treated early, the prospects of improved outcomes are higher. However, in practice, professional help, particularly among older migrant adults is often not sought at all or only sought after a delay [8, 73-74]. Early recognition and appropriate help-seeking will only occur if those in need, or significant people around them, know to recognize early changes produced by mental disorders, the best types of help available, and how to access this help. Knowledge about how to seek culturally appropriate information (when such information is available and accessible) is a key factor in reducing communication

inequalities pertaining to mental health. Also, Understanding the interplay between the ethnic diversity among one's peers, and his/her MHL offers an important additional prism of examining MHL; moving beyond the individual's characteristics and examining his/her social connections as well. This prism can help guiding future studies aimed at reducing MHL inequalities between native born and elderly migrants, as well as for ethnic minorities, and hence help assuring social fairness and enhance effectiveness in care.

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